



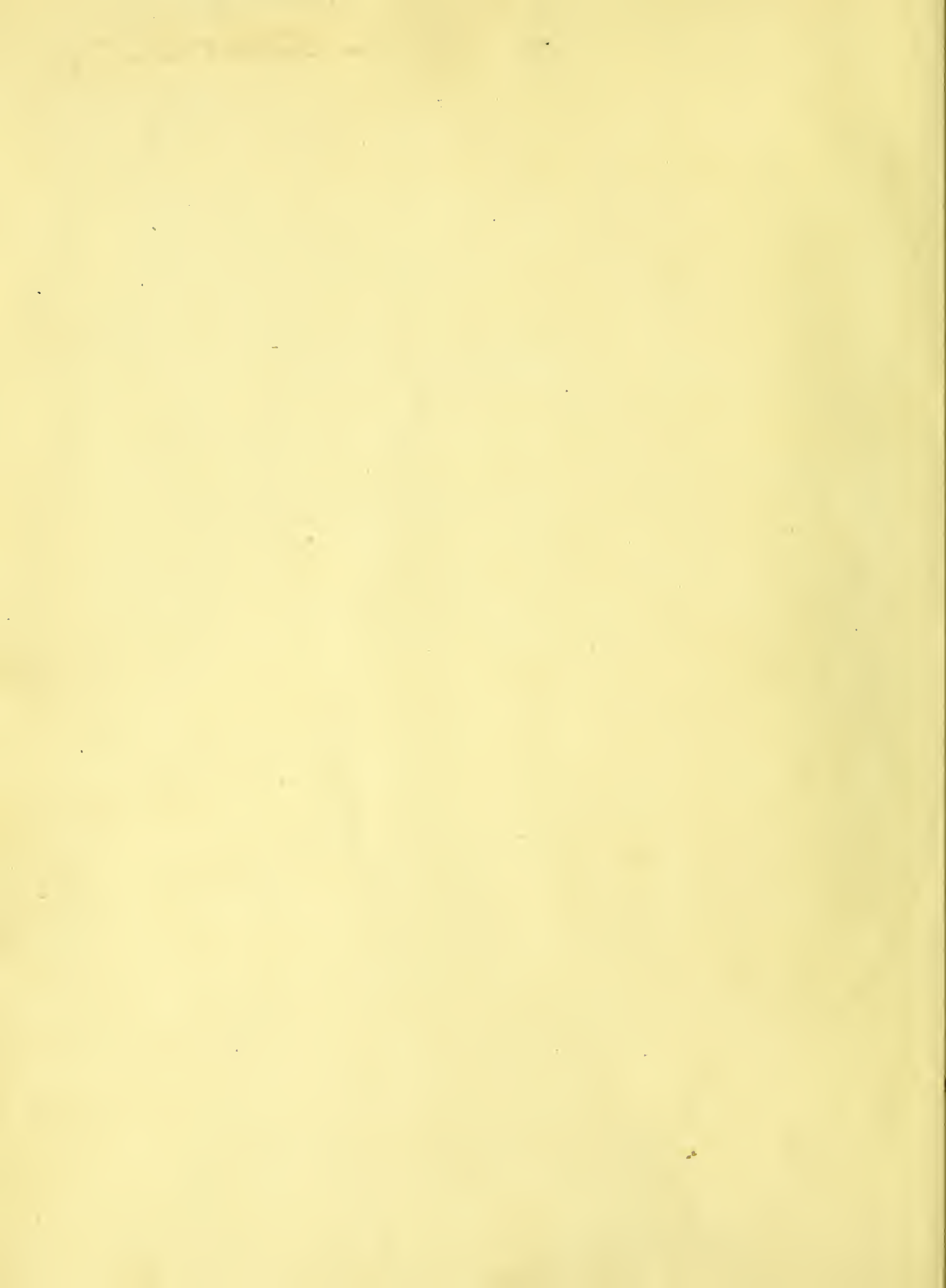
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C. CODRINGTON.

A NEW

SYSTEM OF MIDWIFERY,

I N F O U R P A R T S ;

FOUNDED ON

PRACTICAL OBSERVATIONS.

THE WHOLE

ILLUSTRATED WITH COPPER PLATES.

By ROBERT WALLACE JOHNSON, M. D.

THE SECOND EDITION,
WITH ADDITIONS.

B R E N T F O R D :

PRINTED FOR THE AUTHOR, BY P. NORBURY;
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M.DCC.LXXXVI.

TO THE PRESIDENT

FROM THE SECRETARY

SUBJECT

1. The following information was received from the

Department of the Interior on the

subject of the

the same being in accordance with the

instructions of the

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T O
JOHN HUNTER, E s q.
FELLOW OF THE ROYAL SOCIETIES OF
LONDON AND GOTTENBURGH,
O F
THE ROYAL MEDICAL SOCIETY;
T H E
ROYAL ACADEMY OF SURGEONS,
AT PARIS:
A N D
SURGEON EXTRAORDINARY TO
HIS MAJESTY.

S I R,

Permit me to inscribe this Edition of my
MIDWIFERY to you alone, as one of the most public testi-
monies, which I can give, of the grateful sense I retain, of your
steady friendship to me, ever since the first of our acquaintance,
in the year 1750. My other good friends, to whom, with your-
self, the first impression of it was dedicated, are gone hence.
Thanks to God! You still live to improve medical knowledge. I
am fully convinced from many circumstances that your unbounded
attention to this subject, depends not on lucrative motives; but
singly a desire of doing good to mankind. Proceed, and may you
proceed!

acknowledge the favour, if I live to publish another edition. Should I not be so happy, it is nevertheless my ardent wish, that some experienced practitioner may perfect my design to the public good.

With regard to its arrangement, I have still thought it best to give first the descriptions, dimensions, and representations of such parts of the body, as are absolutely necessary to be well understood, and kept always in mind by the student, before and after he attempts the practice. Though the subject from which these descriptions, &c. were taken, was prepared by my friend Mr. Hunter, exactly to my directions, yet, as the fleshy parts in a dead state fall down, and alter from what they are whilst alive, I judged it necessary to delineate some of them, as near as I could to their natural position and size, as may be seen in plates third and tenth. I was enabled to effect those from ideas obtained in practice; so that I have reason to believe, that the operator cannot be deceived, either in the dimensions or appearances.

I have next treated of some particulars respecting mother and child, that seem naturally connected with the subject, and ought also to be rightly understood prior to the operative part; then of parturition, natural, difficult, &c. and lastly, of some disorders which women are liable to after child bearing; nearly in the same order with Dr. Smellie.

Since my first edition, the world is obliged to several gentlemen who have wrote on different parts of this subject, particularly Dr. Hulme, and the ingenious Mr. White. Such of those writings as have come to my knowledge, and have appeared to me new and important, I have quoted, as may be seen hereafter. In all other parts of the work, where no author is mentioned, what is advanced is from practical knowledge, and was mostly written in the patient's chamber.

Whereever my observations coincide with those of any other author, let them serve to confirm the truth of his doctrine. I have paid much attention to discover how far nature might be allowed to act of herself, without injury

jury to mother or child, especially in difficult parturition; and to know such times and circumstances as demanded the immediate assistance of art. Happy am I now to find, not only by my own further experience; but by the testimony of many judicious practitioners, that the essentials of the practice which I recommended; are not ill founded. In respect to two points, I have heard it remarked; first, that the introduction to part III. is not in order, by not being placed at the beginning of the work; and secondly; that if the work had been printed in octavo, it would have suited the convenience of students better. My reason for placing the introduction as I did, and where I still judge it fittest to be, was to bring forward, in one connected view, immediately antecedent to the operative part, such progress as had been made in the art, to enable the reader better to distinguish between that, and what is offered in the present work; and to direct him also to the right path for making farther discoveries. As to the other observation, I should have been glad to have reduced the price, by comprising the whole subject matter in one octavo volume, were I not certain, that the plates, and other parts of the work, must be so much lessened and abridged, as to render them not so useful as I wished: But to return,

This work being published in 1769, I was in hopes by this time to have seen the operative part of midwifery more improved, as there are many teachers of it in London, still recommending something of their own as new to their pupils. If their discoveries had appeared to me real improvements, I should have been forward now to have adopted them; but as they do not, I hope I shall be excused for abiding by the practice herein recommended. Whether their attempts at improvements or mine be best founded, let the test of time determine: the general good is to be preferred.

With respect to my instruments, I have made a little alteration in the forceps, in not covering their joint and handle, and strengthening a little the shank or handle of the embryulcus. One reason, perhaps, of their not being in more general use, may be owing to the difficulty found in making them right; for I must still own, that I never could get them made perfect, unless, under my own inspection, by Mr. Lane, of this Town.

As

As to cancers in the uterus, I wished to have had the opportunity of enlarging more on that subject, but what I have already advanced must suffice for the present. I think however, a particular regard ought to be paid to the two cases related in Part IV. Chap. XI. The subjects of which are still living evidences of perfect cures. In addition to the above cases, I may observe, that Mr. Corson, Surgeon and Man-Midwife of this town, lately attended a patient with symptoms of an approaching cancer in the uterus. He injected in the manner, and used other means similar to those I have mentioned; the patient is at this time entirely free from her complaints.

By way of appendix, I have added two letters (out of many I have been honoured with on the subject) of the late Dr. Redman, of Philadelphia, with their answer; as they may serve farther to explain and illustrate in some degree what I have advanced in the work; as also, with a design to do justice to the memory of a most valuable member of society, whose philanthropy may be seen in the tenor of his letters.

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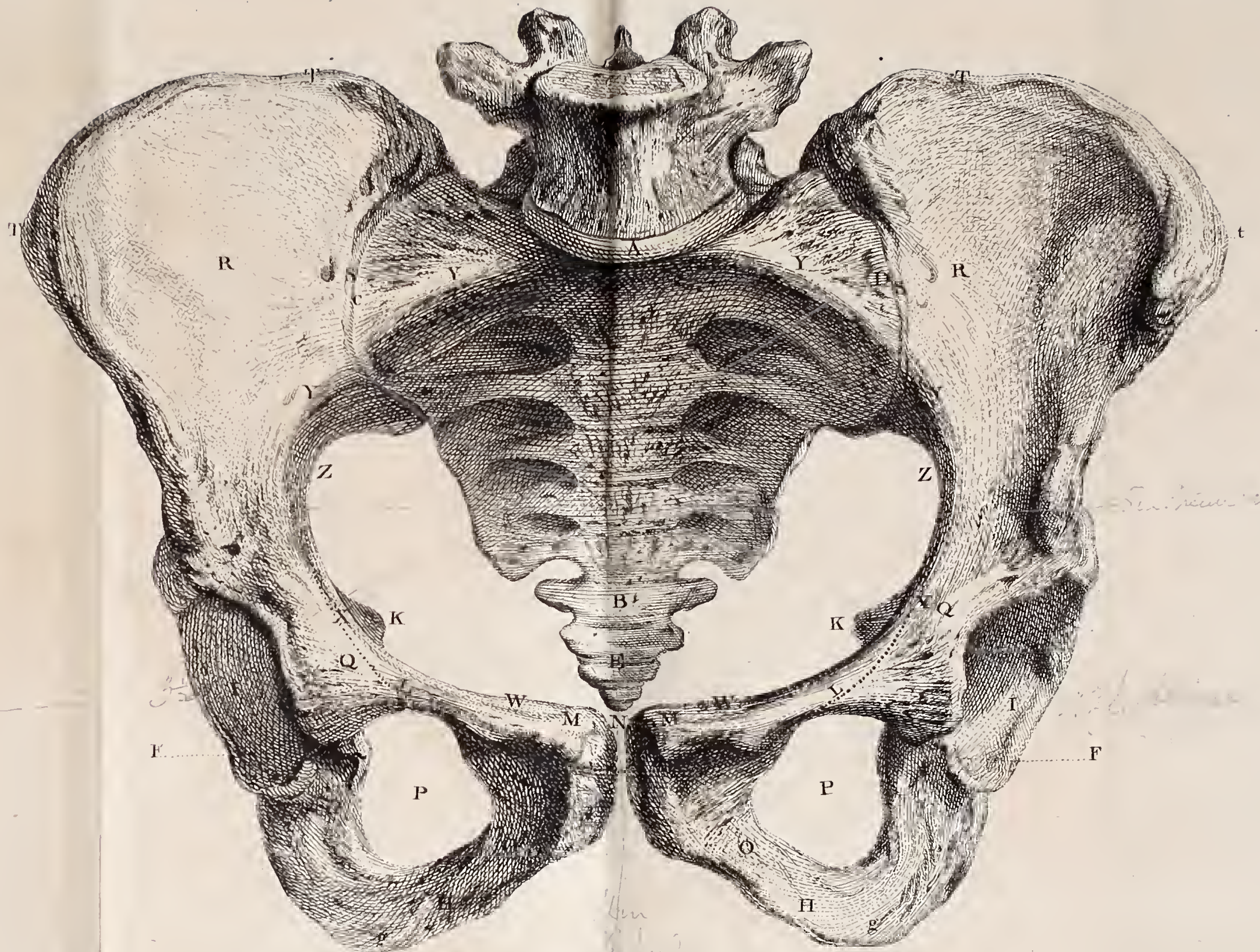
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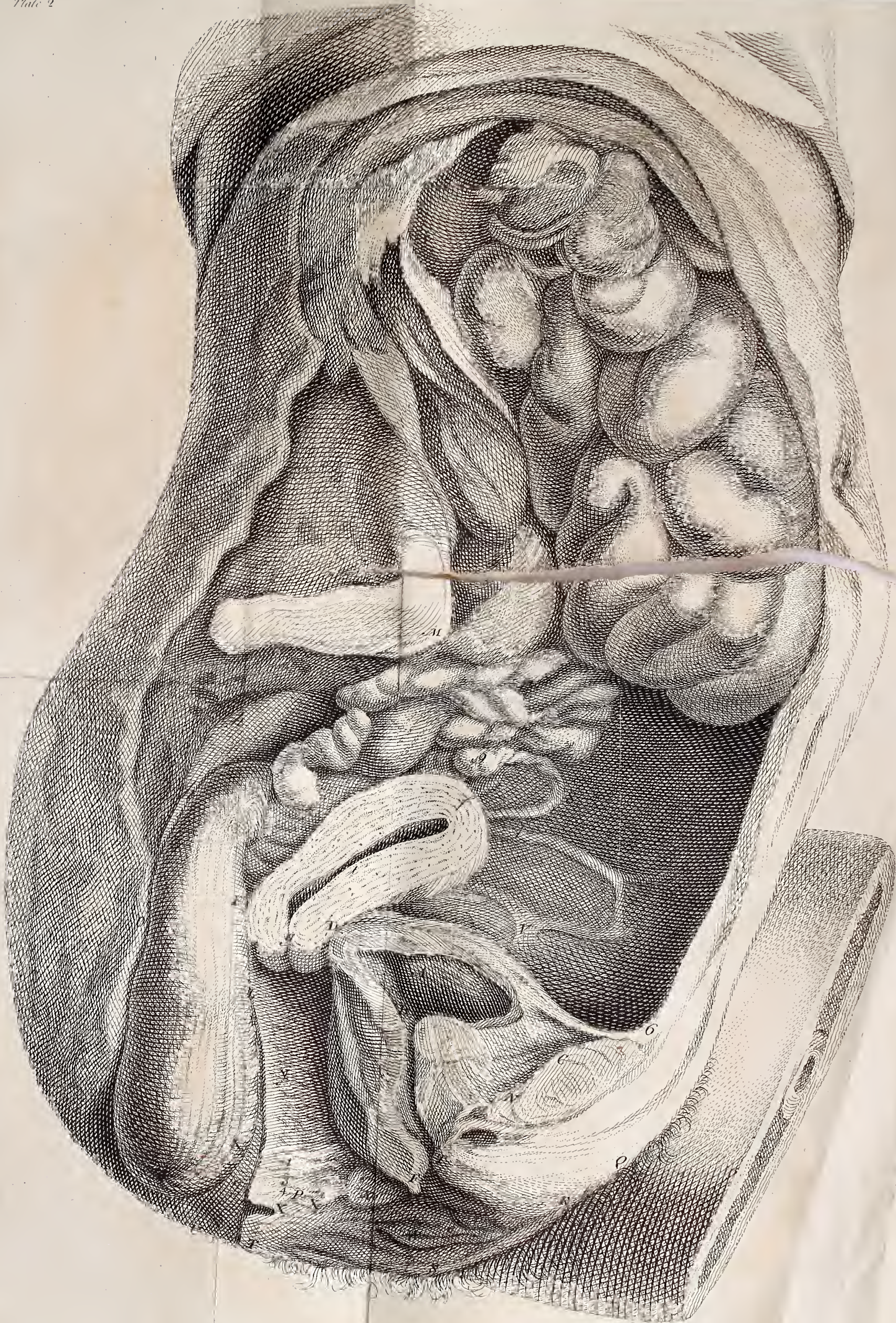
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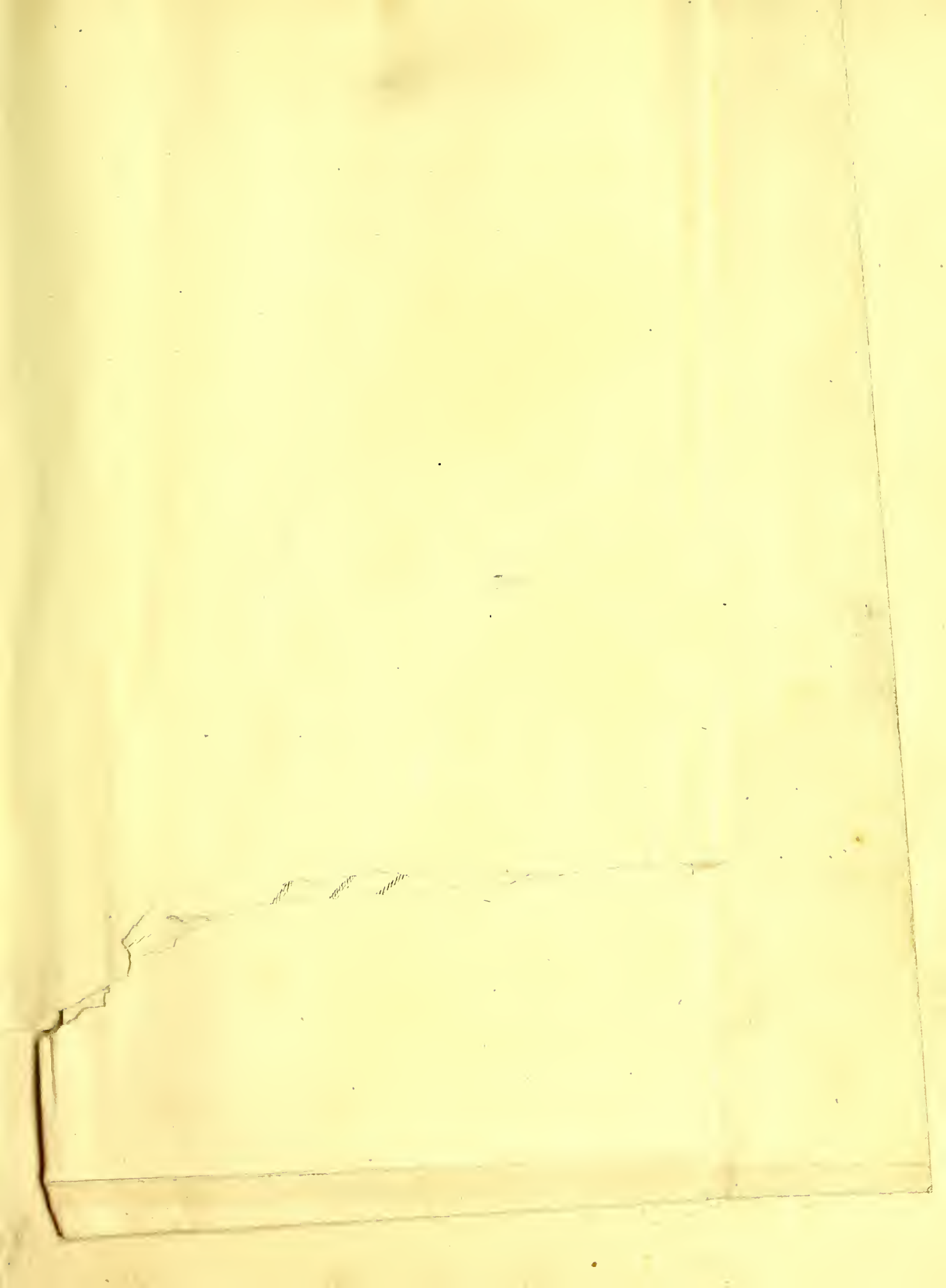


Plate III.



A N E W

SYSTEM OF MIDWIFERY.

P A R T I.

C H A P. I.

OF THE BONES WHICH CONSTITUTE THE LUMBAL SPINE,
AND THE PELVIS.

THE bones which form the abdomen, are those of the pelvis below, five lumbal vertebræ behind, five false and one true rib of each side (principally their anterior ends) above; and the inferior end of the appendix ensiformis, which makes the anterior superior point of its cavity.

§. II. The abdominal spine (that of the pelvis included) reckoning from below, is made up of the os coccygis A, os sacrum B C, and five vertebræ lumborum E, F, G, H, I. That part of the spine which

Abdominal
spine.
Plate III.

B

is

Great angle
of os sacrum.

is formed by the vertebræ, bends forwards with a prominent convexity; and its lowest vertebra at D, being articulated with the superior end of the os sacrum C, forms an angle D, called the great angle of the os sacrum, which in some bodies is very sharp, and projects, in a considerable degree, over the brim of the pelvis.

§. III. Immediately below this great angle, the os sacrum recedes back for several inches, so as to be nearly horizontal when the body is perpendicular; then making a bend downwards, it forms an obtuse angle at B, called the little angle of the os sacrum; and immediately below this angle, it articulates with the superior end of the os coccygis.

The os coccygis continues its course directly downwards, then forwards, and ends in a small apex at A, which terminates the spine below.

Os sacrum.
Plate I.

§. IV. The os sacrum which forms the superior posterior side of the pelvis, is usually about four inches long from A to B, three inches broad at the superior end C D, and less than two at the inferior end B. Its concave or anterior side is usually smooth, but the posterior convex side has many prominencies which are filled up, and covered with the muscular and tendinous parts behind.

Os coccygis.

Plate III.

§. V. The os coccygis E, which forms the inferior posterior part of the pelvis, is usually about three inches long, or thereabouts; is broadest at its articulation with the os sacrum, and from thence it grows gradually narrower to the apex, where it terminates as small as the end of one's little finger. It consists of four bones, 1, 2, 3, 4, whose articulations admit of such motion as to recede a little back as the child passes through the pelvis.

§. VI.

§. VI. The pelvis is made up of the two last described bones, and ^{Pelvis.} the two ossa innominata. Each os innominatum in children makes three distinct bones, called os pubis, ilium and ischium; but, in the adult state, they are so firmly united as to make but one, whose portions still retaining their names, shall be described accordingly.

§. VII. The inferior portion of the os innominatum called ischium, ^{Os ischium.} is usually distinguished by the body F, tuberosity G, and ramus H. ^{Plate I.} It is joined to the os ilium above, and os pubis before, making the middle and inferior part of each side of the pelvis. The body externally forms the lowest and greatest part of the acetabulum I, and sends an apophyses K backwards, called the spine of the ischium. The tuberosity G being downwards, makes the inferior part of the whole trunk, it being that part on which the body rests, when we sit. The ramus H, is a thin apophyses, which arising from the inferior part of the tuberosity, passes forwards and upwards, till it joins the ramus of the os pubis, and forms the foramen magnum ischii.

§. VIII. The anterior portion of the os innominatum called os ^{Os pubis.} pubis, is the least of the three, and is usually distinguished by the body, angle, and ramus. The body L, being the outer part, joins to the os ilium; the angle M, being the anterior and inner part, joins the angle of that of the other side; and forms, by a thick cartilaginous substance, what is called the symphyfes N of the pubis. The ramus ^{Symphyfes of the pubis.} O, is a thin apophyses, which arising from its inferior edge, near to the symphyfes, passes downwards, outwards, and backwards, and joins below to the ramus H of the os ischium. By this juncture of those two branches, is formed a large hole P, called the foramen magnum ischii, as mentioned before.

Os ilium.

§ IX. The superior portion *QR* of each os innominatum, called os ilium, is articulated behind to the edge of the os sacrum *CD*, near to its great angle, by a firm cartilaginous substance *S*, and is united to the os pubis before, and to the os ischium below.

The superior part *R* of this bone is thin, and the edge *TT*, rising up like an arch, and flying or turning outwards, makes the upper part of the pelvis, when viewed together, to resemble somewhat the wings of a phaeton. This superior edge is called the crista.

Brim of the pelvis.

§. X. Upon the inner superior edge of each os pubis there rises a ridge, or spine *W*, which, passing from the symphysis *N*, obliquely upwards and backwards, joins another spine *X*, formed on the inner surface of the inferior part of the ischium, which, running also backwards and upwards, joins to the os sacrum at *Y*, a little below the great angle. This ridge or spine *WXY*, when covered with the fleshy parts, must be understood in the following work to be the brim of the pelvis.

Alæ, or wings of the pelvis.

§. XI. The superior part of each os ilium, immediately above the ridge or spine described in last section, flies obliquely outwards, in resemblance of a wing, as observed in §. VII. This ala or wing of each os ilium is in breadth from the brim at *Y*, to the crista at *T*, two and an half inches; sometimes a little more.

C H A P. II.

OF THE ABDOMINAL CAVITY, PSOÆ-MUSCLES, POPARTS
LIGAMENTS, PERITONÆUM, BLADDER, AND RECTUM.

THE fleshy parts, which constitute the abdominal cavity, are ^{Constituent parts.} these following: Above, the diaphragm; before, and on each side, the muscoli obliqui ascendentes, descendentes, transversales, and rectus abdominis; below, poparts ligaments, psoæ, quadrati lumborum, iliaci, glutæi, ligamenta sacro-sciatica, muscoli coccygæi, levator and sphincter ani, crus and erector clitoridis, and sphincter vaginæ.

It is covered externally with the common integuments, and lined within by the peritonæum. As a description of each of these parts here would be more tedious than useful, I shall only take notice of the psoæ, poparts ligaments, and the peritonæum.

§. II. The psoæ-muscles take their origin chiefly from the last ^{Psoæ-muscles.} vertebra dorsi, and the four superior of the loins; then passing from each side of the spine, a little above and behind the great angle, they run obliquely outwards and downwards upon the brim of the pelvis, till at its widest part they pass under the superior or outer ends of poparts ligaments, making there what is called their decussations, or angles, with those ligaments; and then passing over the ilia, near to their junctures with the ossa pubis, they are chiefly at last inserted into the little tuberosities of the ossa femorum.

§. III.

Observation. §. III. These muscles, being of a thick, round and conic form, and lying upon the inner edges of those which immediately cover the alæ, namely, the iliaci interni, form a deep cavity on each ala, above three inches in length and two in breadth. As they lie thus upon the inner edge of those muscles, near one half of their diameters projects inwards over the brim of the pelvis.

Hence, when the child's head presents right, at the birth, to the centre of the pelvis, these muscles will move outwards till they become equal to the boney brim, and thereby cause no obstruction: but if the vertex, or crown, should happen to hitch on the outer side of either of them, they will then fly inwards, the vertex consequently slide outwards into the cavity on the ala, by which position the head will fall across the brim of the pelvis, and the birth be obstructed.

Poparts ligaments.

§. IV. Poparts ligaments cover the anterior part of the brim of the pelvis. Their course is from the anterior tuberosity of each os ilium to the symphyse of the pubis; and they are formed by the union of the tendinous fibres of the muscoli obliqui descendentes abdominis, in manner following:

The third digitation of those muscles (reckoning upwards) run downwards; and, in part, are inserted into the anterior tuberosity of the ossa iliaca. The remaining portions fly off from these tuberosities forwards and downwards, and are inserted into the superior edge of each os pubis, near to the symphyse. In this course the tendinous fibres of the third digitations are joined by those of the fourth digitations, in a gradual manner as they descend; forming a strong ligamentous substance.

Peritonæum.

§. V. The peritonæum is a strong membrane, which is very smooth on the inner surface; namely, that side which makes the inner surface

OF THE ABDOMINAL CAVITY, &c.

face of the abdominal cavity. Its outer surface is covered with a fibrous substance, called its external portion, which connects it to the periosteum of the bones, and to the other contiguous parts. It lines the whole cavity; and, by sending off portions or elongations, which rise up in folds or duplicatures, from the surface of the cavity, it thus makes coverings, or external coats, for all, or most of the abdominal viscera. Hence it is said, that the abdominal viscera lie on the outside of the peritonæum, notwithstanding that it thus lines the cavity within which they are contained.

§. VI. The bladder A B is situated between the symphyfes C of the pubis, and the anterior side of the cervex uteri D, and upper part of the vagina E. When it is distended with urine, the fundus A rises higher than the upper edge of the pubis; but when collapsed, it lies close to the neck D of the uterus, and superior part E of the vagina. The anterior part of its neck is attached to the symphyfes of the pubis, by means of a cellular substance, and the peritonæum, which is reflected from this viscus to the side of the pelvis and neighbouring parts; and the posterior part of its neck is attached to the upper part of the vagina, by means of the cellular substance and that reflection of the peritonæum which makes the external coat to both it and the uterus. Its connection to the pubis is but loose, which permits its dilatation and contraction. Its substance is made up of three coats, the external being the peritonæum, the middle one a texture of muscular fibres, and the internal one membranous.

Vesica urinaria.

Plate II.

§. VII. The urethra is a tube, which passes from the inferior end B of the bladder, along a kind of groove formed on the inner surface of the symphyfes of the pubis, till it terminates externally by an orifice T, called meatus urinarius. By this groove or hollowness the urethra

Urethra.

urethra is considerably defended from injury by the pressure of the child's head, while the latter passes through the pelvis.

The length of
the urethra.

The urethra is usually about an inch and a quarter long; and from the meatus urinarius, to the fundus vesicæ, the distance is usually about three or four inches.

Meatus uri-
narius.

§. VIII. The meatus urinarius F is situated immediately below the under edge of the symphyse of the pubis, and about half an inch above the os vaginæ.

Rectum.

§. IX. The intestinal tube, immediately below the sigmoid flexion g of the colon, takes the name of rectum, and passes down the posterior side h h of the pelvis, till it terminates in the anus J. The anterior side K K of this intestine, called rectum, is connected to the posterior side of the vagina L L, its whole length; and its posterior side is connected to the anterior sides of the os sacrum and os coccygis, by means of the cellular substance h h.

Observation.

This intestine is naturally very capacious, and consequently liable to be distended, sometimes violently, with an incredible quantity of feces; for which reason it ought always to be emptied, at the beginning of labour, by means of an enema.

The intestinal tube, by this sigmoid flexion, enters the pelvis in an oblique course from the left side downwards, and under the great angle M of the os sacrum, whereby it avoids that injury, which otherways it would often sustain, by pressure, as the child passes through the pelvis.

C H A P. III.

OF THE FORMS AND DIMENSIONS OF THE ABDOMINAL CAVITY, INCLUDING THOSE OF THE PELVIS.

THE abdominal cavity, (exclusive of the pelvis) when the viscera are taken out, is of an irregular oval figure, though symmetrical. It is bounded above, in a circular manner, by the diaphragm K; below by the pelvis, and behind by the lumbar spine D E F G H I, which projects above an inch and an half into its middle, and divides its posterior side into two equal cavities. Its diameters are largest about the navel M, and upper part of the hypogastrick region; and at the lower end, or tuberosities of the ilia, it becomes flat.

Form of the
abdominal
cavity.

Plate III.

§. II. The length of this cavity, in a well-sized body, is usually sixteen inches, measuring from the appendix ensiformis L, to the symphyfes of the pubis N. From the symphyfes to the right lobe of the liver, it measures about ten inches, to the fissure of the liver thirteen inches, and to the spleen only seven or eight inches.

§. III. The breadth of it, above, is usually about nine inches; at the flanks about seven inches; at the superior tuberosities of the ilia about seven inches; and at the anterior apex of the alæ T t, or cristæ iliorum, about nine inches.

Plate I.

§. IV. The body being upright, and a perpendicular line let fall from the articulation of the third and fourth vertebræ lumborum, reckoning upwards, it will descend about an inch before the symphyfes of the pubis; and if such a line is drawn from

C

the

The reason why the child rests so commonly on the brim of the pubis.

the great angle of the sacrum, it will commonly fall on the inside of the symphyfes a little below the brim. Hence it becomes evident, why the head of the child so frequently rests upon the upper edge of the pubis, and thereby retards delivery; for if in a well-formed body, the child rests so much here, as to hinder the birth, how much more will it be obstructed when the angle of the os sacrum is very prominent, and thereby throws the child's head considerably forwards over the brim of the pubis?

Form of the pelvis.

Plate I.

Plate II.

§. V. The cavity of the pelvis, its viscera, namely, vagina, uterus, bladder and rectum being taken out, is of an oval form, in opposite directions; for at the brim it is widest from side to side, namely, between those parts Z Z, where the psoæ and poparts ligaments decussate; and at the bottom it is widest betwixt the anterior and posterior sides, that is, between the lower edge of the symphyfes N of the pubis, and the apex O of the os coccygis.

The hollow of the os sacrum.

§. VI. The posterior side is so hollow and concave, as to recede above four inches behind the angle of the os sacrum; and, as Dr. Smellie has rightly observed, it is near four inches deeper on that side than it is at the symphyfes before, as may be seen by plate I. and II.

The anus J is situated near to the centre of the bottom; and the aperture P for the vagina, is immediately under the symphyfes of the pubis.

Dimensions of the pelvis.

Plate I.

Plate III.

§. VII. The widest part of the pelvis at the brim, viz. at Z Z, measures usually, in a well formed body, five inches; and in the largest size not above an inch more. The widest part of the middle, namely, from the inner side O of the symphyfes to the inferior end P of

P of the os sacrum, measures five inches ; and at the bottom, from O to the os coccygis at A, five inches likewise.

§. VIII. The narrowest part of the pelvis at the brim, viz. between the great angle D and the upper edge of the pubis Q, measures four inches ; and at the narrowest part of the bottom, namely, at the tuberosities of the ossa ischii G G, its measure is the same. Plate I. Hence a body, whose dimensions are five inches of diameter one way, and four the other, may pass through the pelvis, provided it can turn round, as it advances, to make them correspond with those of the pelvis.

§. IX. The posterior side of the pelvis from D to A, in a straight Plate III. line, measures five inches and a half, sometimes six ; at the sides Z Z four inches ; and at the symphyses of the pubis only an inch Plate I. and a half ; so that, as has been observed, the posterior side is nearly four times as deep as the anterior side.

C H A P. IV.

OF THE CHILD'S HEAD, AND THE MANNER IT
PASSES THROUGH THE PELVIS.

The form of
the head.

THE child's head is of an oval form, something flattened on each side; the vertex in a speedy and natural birth is pretty round; but in lingering, or very laborious ones, it is usually conical. From the vertex over the crown, forehead, face and chin, it rises up in a semi-lunar form; and on the opposite side, namely, from the vertex to the nap of the neck, it is a little concave; so that, by a side view, it appears of a curved oblong form, somewhat resembling that of a crescent.

The dimensions of the
head, &c.

First child.

§. II. A middle sized woman brought forth, by the natural efforts, a large sized child, whose weight and dimensions were as follow; The weight ten pounds and eight ounces Troy.

The diameter of the head, from temple to temple, was three inches and an half; from os frontis to occiput four inches and an half; and the circumference at those parts was thirteen inches.

The breadth of the body, at the shoulders, was five inches; the length of the head, from vertex to chin, six inches, and that of the whole child full 21 inches.

Second child.

§. III. A young woman, who was muscular, small sized, and in her first pregnancy having sustained a very tedious and violent labour, at last, by the force of pains, brought forth a child, whose weight was only eight pounds five ounces Troy; its head, however, was of the following dimensions;

From

From temple to temple four inches; from os frontis to occiput five inches and an half; the circumference, at those parts, fourteen inches; and the length, from vertex to chin, was eight inches and an half.

This child's head was greatly squeezed out in length, by the violent compressure which it had suffered in its course through the pelvis.

§. IV. A large woman, who had born several children, in 1759, Third child. brought forth a child of the following weight and dimensions:

The weight, fourteen pounds and one ounce Troy; the length of the whole body, twenty-two inches and an half.

The diameter of the head, from temple to temple, four inches; from os frontis to occiput five inches and one-eighth; its circumference, at those parts, fifteen inches; and its length, from vertex to chin, five inches and one-fourth.

The circumference of the body, at the shoulders, arms included, eighteen inches and an half; and at the ilia fifteen and an half.

The breadth of the body, at the shoulders, seven inches; and at the ilia six inches.

§. V. Now, when a well formed pelvis is naturally furnished with the fleshy parts, it may reasonably be allowed that each dimension, observed in Chap. III. §. 7, and 8, will become lessened about a quarter of an inch. Hence, as an ordinary sized child comes along through the uterus and vagina, there will be the eighth part of an inch on every side, to permit its passage through the pelvis.

The dimensions of these three childrens heads compared with those of the pelvis.

This being allowed, let us next compare the forms and dimensions of these three childrens heads, with those of such a pelvis; and then consider, which way they could pass the most easily through it.

The

The head of the first child was four inches and an half at the thickest part, and three and an half at the thinnest or narrowest part, which proves, that each dimension of this head, was a quarter of an inch less than those of such a pelvis.

Moreover, the length of the head being six inches, which was only equal to the depth of the posterior side of the pelvis; and the shoulders five inches, which being scarcely equal to the widest part of the pelvis, considering how much they are compressible; hence, there must be room for this child to pass in the following directions:

How they
passed thro'
the pelvis.

Plate I.

§. VI. Daily experience proves, that a child cannot present itself in a more natural position to the birth, than with either its vertex or crown to the center of the pelvis, and the face to one ilium (either of them the same) namely, to Z, or from that a little towards the sacrum; as for instance, to S. Now let a child of this size, present itself in this position, and its head will be forced on by the contractile and expulsive force of the uterus, and that of the abdominal muscles, till the hind part of the vertex comes against the tuberosity G of the os ischii, at which place it will halt a pain or two, even in the most speedy and natural birth; for as the broadest part of the head comes now to the narrowest part of the pelvis below, or a little before it, it can advance no farther in that direction; therefore as the opening of the bones at the bottom of the pelvis behind, viz. the space, between the tuberosities of the ossa ischii, the coccygis, and the edges of the os sacrum, is less than that which extends between the foresaid tuberosities GG, and lower edge of the symphyses n, and is also covered with ligaments and muscular parts, which make great resistance; hence, as the vagina and its orifice at this time of the labour are usually well opened, consequently little resistance on this side; the vertex, by the propelling force of the pains, will naturally advance before the tuberosity against which it rested;

rested; and by the curved form of the pelvis, and that of the head, as it moves on, the hind part of it will turn most readily towards H, then to the symphyse n of the pubis*, and the face, in consequence, round to the hollow of the sacrum, &c.

The crown (or the vertex when the head is squeezed out in length) being now come into the os vaginæ, and the pains redoubling their force, the hind, or curved part of the head, will move forwards to the inside of the symphyse, and the face push out the perinæum. Thus it will advance from below the pubis forwards, till it is entirely without the labia pudendi; after which the shoulders, now pointing to the widest sides of the pelvis, and besides being generally less than the head, as they are capable of being considerably compressed, they will come forth also, and consequently the rest of the body will follow.

It may be excusable for me to observe here, as a necessary hint in using the forceps, that in case of an ordinary sized head, when the vertex is arrived at the os vaginæ, the chin, at the same time, will be descended a little below the great angle of the sacrum.

A hint when the forceps can be used with success.

§. VII. The dimensions of the second child being considered, the widest or thickest part of the head proves to be three-fourths of an inch more than the widest part of the pelvis described; the thinnest part of it was equal to the narrowest part of the pelvis; and the length of it nearly three inches more than the depth of the pelvis at its posterior side.

Now let us suppose that the pelvis of the woman, which admitted the birth of this child, was half an inch every way larger than that described in Chap. III. §. 7, 8, and 9. (though I am certain it was not) and that the child passed through it in the same directions and turnings as described in the last section (which it really did) yet we may

* This opening N n, shews the natural distance between the ossa pubis, the cartilaginous substance being removed.

easily

easily perceive that this birth must be very tedious, and extremely difficult for the following reasons :

First, The circumference of the head being larger than that of the pelvis, many pains (and strong ones too) must be required to squeeze it out in length, so as to be received at the brim of the pelvis.

Plate III.

Secondly, It being thus lengthened, the chin must be more than two inches above the great angle of the sacrum, when the vertex was at the os vaginæ ; hence, as the head advanced, one side of the chin would press against the great angle D of the sacrum ; the head, a little above the ear, against the inside of the pubis above Q ; and the vertex against the posterior edge of the os vaginæ, or anterior part of the perinæum R ; consequently many pains must be required to force it along, and turn it round, to answer to the curvature of the pelvis.

Thirdly and lastly, The os tincæ, the vagina and its orifice, and the labia pudendi being loth to give way to the first birth, especially in women who are muscular and work hard, as was the case here, many pains, therefore, must have been sustained, before the resistance made by those parts was overcome.

§. VIII. Finally, let us now consider how the third child, whose size was so very large, made its passage, even supposing the pelvis of the mother was half an inch at the narrowest part, and an inch at the widest, larger than the pelvis described, (Chap. III.) as I believe was the case here ; notwithstanding that the shoulders were seven inches broad, and their circumference eighteen inches and an half, which was more than equal to that of the pelvis, supposing it had been six inches every way.

Now, the possibility of its passage becomes very evident, when we consider that the head was only of an ordinary size ; and although the shoulders might be an inch wider than the widest part of the pelvis ;

pelvis ; yet (as observed before) as they were capable of being lessened by compressure, there was room for their passage. Besides, there were other circumstances which help'd somewhat to facilitate this birth, viz. She had bore several children before this, some of whom had been very large ; she had also, at this time, a very copious quantity of the liquor amnii, which greatly softened and lubricated the parts: and, as I found the body halt, when the head was come forth, I assisted by bringing down one shoulder, in the manner as shall be directed in its proper place ; after which, the other, and then the body followed.

These circumstances did, no doubt, hasten this birth ; yet, considering what nature does frequently, when left to herself, it is not improbable, but she could have done this alone.

C H A P. V.

OF THE FEMALE ORGANS OF GENERATION.

Pudenda.
Plate II.

Mons
veneris.

Labia pu-
dendi.

Perinæum.

Fossa magna.

Clitores.

Nymphæ.

Meatus
urinarius.

THAT round and soft eminence Q, which is placed on the anterior superior part of the symphyfes of the pubes, called mons veneris, divides at the middle of its inferior edge R into two prominent equal parts S, called labia pudendi, which descend about three inches downwards and backwards, and then joining together at T, terminate in what is called the perinæum.

The perinæum U, is that space, or fleshy continuation which lies between the union T of the labia, and the anus J. Its extent is usually about an inch and half; and from the anus to the apex of the os coccygis, the extent of the fleshy parts backwards, is usually about two inches.

The labia pudendi being held apart, there appears a deep fulcus d, called fossa magna, which is covered with a redish smooth membrane.

In the upper end of the fossa magna, nearly opposite to the middle of the symphyfes, there appears a round eminency, e, called clitores.

Immediately from the clitores there passes on each side of the fossa, downwards and outwards, two high folds, or doublings W, called the nymphæ.

About an inch below the clitores, in the centre of the fulcus, between the nymphæ, and about half an inch above the os vaginæ, there appears the meatus urinarius F; the lower edge of which being a little prominent, assists the introduction of the catheter, as shall be observed more fully hereafter.

At the lower part of the fossa magna, about half an inch Os vaginæ. within the labia, and close to the anterior part of the perinæum, there appears the os vaginæ P, called also os externum. This orifice closes itself by folds or wrinkles, and, from its outer edge at P, there rise, at nearly equal distances, four angular productions, like X, called carunculæ myrteformes. These carunculæ, Carunculæ myrte formes. in women who have had children, become very obtuse, and are frequently intirely obliterated.

In some virgins, they make but one membrane, called hymen, Hymen. which partly, sometimes intirely, closes up the orifice.

§. II. The vagina Y, or entry to the uterus, is situated between Vagina, or entry to the uterus. the urethra and rectum. In the virgin state it is usually about four inches in length; but in women who have had children, it becomes shorter; that is, the os tinæ is lower; its substance is muscular, and in thickness resembles that of the bladder, but is more dense. It is surrounded externally by a cellular substance, which connects it to all the neighbouring parts, namely, its anterior side to the os pubis, urethra, and neck of the bladder; and its posterior side to the rectum, its whole length.

Its inner coat is a continuation of that membrane, which covers the fossa magna; but is much thicker, rises up, especially near the orifice, into many transverse rugæ, 1, 2, 3 and 4, and appears of a dark grey colour.

At the upper end E L, it becomes considerably longer in capacity, and then contracting quickly, it terminates in the substance of the uterus, having first surrounded that organ about half an inch above the os tinæ.

§. III. The womb, or uterus, is properly a continuation of the The womb, or uterus. vagina; it is situated between the bladder and rectum, with its fun-

dus f upwards, and the smallest end, in which is the orifice g, called os tincæ, os uteri, or os internum, downwards, and projecting about half an inch into the upper end of the cavity of the vagina.

Form. It is flat, and of a triangular form; two of which angles are upwards, and the other downwards. One flat side is towards the pubes, and the other the os sacrum, and the edges are towards the ilia.

Magnitude. In the virgin, and ungravid state also, it is usually three inches long; two and about three quarters broad near to the fundus, namely, where the fallopian tubes enter or open into its cavity; and only about five-eighths of an inch broad at the os tincæ.

Thickness. Its diameter, in thickness, at the fundus, is usually about an inch and a half, and at the orifice about half an inch.

Cavity of the cervix. The passage or entry from the os tincæ, through the cervix, into the cavity of the uterus, that is, from g to i, is usually an inch long, and two-eighths of an inch broad; so that its capacity will admit readily the pipe of a syringe, whose size is about that of a catheter.

Cavity of the body. The cavity of the uterus corresponds in form with that of the external configuration, for it is triangular. From the cervix at i, to the fundus at f, it usually measures about an inch and a half; at the orifice of the fallopian tubes it is about an inch in breadth; and in depth, that is, from the anterior to the posterior sides, two-eighths of an inch.

The thickness of the substance of the cervix. The thickness of the substance of the cervix (measuring about an inch above the os tincæ) from the inner to the outer surface, is usually about five-eighths of an inch; and from this part to the orifice it grows gradually thinner.

Thickness of the body. The thickness of the body of the uterus, measuring also from the cavity to the outer surface, is pretty equal, and is usually about half an inch.

The

The whole substance of the uterus appears to consist of many glands, interwoven with many small ligamentous fibres, small branches of nerves, and with arteries and veins innumerable. Texture of the uterus.

The inner coat, especially that part which lines the cervix, is a continuation of the membrane which lines the vagina. On the cervix its surface is smooth, but nevertheless rises up in many small rugæ, like those near the os vaginæ.

The inner surface of the body of the uterus is covered with a very fine fibrous shag, or villi, amongst which there are many small apertures (as have appeared to me) or oblong orifices, which open from the sides of those veins that lie next to this surface. Apertures on the inner surface.

These orifices will be better understood by two cases, which occurring to me in the year 1757, shall be taken notice of hereafter.

The external coat of the uterus is only a reflection of the peritonæum, which flying off from the sides of the pelvis, and posterior side of the neck of the bladder, reflects over the whole uterus, and then passing off from that, covers the intestinum rectum. External coat.

This portion, or duplicature of the peritonæum, by passing off from the sides of the uterus to the sides of the pelvis, namely, under the decussations at Z Z, or rather before those parts, is there firmly connected, and makes what is called ligamenta uteri lata. Ligamenta uteri lata. Plate I.

The ligamenta uteri lata, thus formed by a duplicature of the peritonæum, making two broad fasciæ, one edge of which being upwards, and level with the brim of the pelvis, the other downwards, and extending to near the middle of the pelvis, that is to say, near half its depth, serve not only to support the uterus, but likewise to convey nerves and blood vessels to it, from the sides of the pelvis. Their upper edges are also formed into two folds, the posterior of which serve to cover the ligaments that attach the ovaria to the uterus.

These

These ligaments, being thus broad, and firmly connected to the sides of the pelvis, are rendered fit, not only to support the uterus, but also to prevent its tilting forwards or backwards. Nevertheless, some years ago, I met with a case in which the os uteri was turned directly to the pubes, and consequently the fundus towards the posterior side of the pelvis, rather lower than the orifice; which occasioned much pain and uneasiness to the woman. At first I did not know what to make of it; but having carefully searched about with the point of my finger, till I found the orifice, I then brought it down, by sometimes moving the fundus gently up, and at other times getting the point of my finger above the orifice. This patient did not complain of any pain afterwards, nor did the uterus descend any lower than usual in the pelvis. Nay, since that time, she has been several times pregnant, and has gone the whole time without any bearing down, or other complaints; hence this overturn, I think, of the uterus could not be occasioned by a relaxation of those ligaments.

Besides this case, I have had one since, of the same nature, in a woman who had never born any children, and whose uterus was high in the pelvis.

Ligamenta
uteri rotunda.

Plate II.

The round ligaments v, of the uterus, arise from its edges, immediately below the fallopian tubes; and passing along, within the forepart of the broad ligaments, they then mount upon the sides of the pelvis (6.) by the outside of the hypogastrick artery; then, making a turn inwards and downwards, pass from under the edges of the transversales obliqui musculi, and through the tendons of the obliqui interni musculi; after which, they terminate in the substance of the mons veneris.

The origins, directions, and insertions of these ligaments being considered, it does not seem improbable that they assist not only in bringing the uterus lower and closer to the os pubis, in the time of coition,

coition, that it may receive the semen masculinum in a direct line : but also, in exciting the fallopian tubes to the performance of their functions in the work of generation. The substance of these ligaments is vascular, and although both they, and the broad ligaments, admit the uterus, in the virgin state, to move only about an inch up and down ; yet, in the pregnant state, they admit of great distention, and nevertheless recover themselves, after parturition, with surprising quickness.

The tuba fallopiana of each side, begins by a small orifice on the inner surface of the uterus, in the angle near the fundus. From thence, passing through the substance of the uterus, a little obliquely downwards and outwards, it runs along within the superior edge of the anterior fold of the broad ligament, (7.) until it arrives upon the edge of the pelvis, (8.) at which place it reflects back, and turns over behind the ligaments, and about one inch of its extremity hangs loose in the pelvis, near the ovarium. The fallopian tubes.

The extremities of these tubes are jagged, somewhat resembling fingers, and are known by the name of fimbriæ, or *cornu diabolici*. The tubes themselves, are usually about three inches long, their cavities are extremely small at the inner orifice ; but as they approach towards the fimbriæ, they become gradually larger. The fimbriæ.

The ovarium (9.) of each side, is situated behind the fallopian tube, about an inch from the edge of the uterus, to which it is attached by the posterior doubling of the upper edge of the broad ligament, as has been already observed. It is of a flat and angular form, the largest side being an inch, and the other two, about three quarters of an inch. The ovaria.

Its substance appears white and glandular ; it is covered with a production of the peritonæum, and hangs loose in the cavity of the pelvis, just behind the broad ligament, and contiguous to the fimbriæ of the fallopian tube.

Arteries of
the uterus.

§ IV. The uterus is supplied with blood by means of the spermatic and hypogastric arteries; and its blood is conveyed back, or returned by the veins of the same names.

The spermatic arteries arise from the great aorta, about an inch above the origin of the mesenterica inferior. (Sometimes they arise from those of the kidneys, especially the spermatic on the right side) then passing downwards, and a little outwards, they mount over the iliacæ to the sides of the pelvis; from thence they pass along in the duplicature of the broad ligament to the ovaria, into whose substances they send branches; then passing along the ligaments of the ovaria, they anastomose with those of the hypogastric; after which, some branches enter into the substance of the uterus; where, dividing into many smaller and smaller branches, they finally lose themselves by anastomoses.

That branch of the iliac artery, on each side, called arteria hypogastrica, having run downwards and inwards upon the inside of the pelvis, about an inch and half below its origin; it then divides into three branches, the anterior of which retains the name; the middle branch is called, pudica interna; and the posterior, arteria sciatica.

The remains
of the umbilical
artery.

The continued trunk, or anterior branch, having passed a little down, then reflects upon the side of the bladder, where it soon becomes impervious. This branch is the only remains of the umbilical artery; which, in the embryon state, went from the bladder to the navel, and so along the funis to the placenta.

Pudica interna, or that
hypogastric
branch which
supplies the
uterus.

The middle branch, called pudica interna, passes off from the sides of the pelvis, and within the broad ligaments, to the edge of the uterus, where it enters the upper part of the cervix, about an inch above the os tincæ. Having arrived in the substance of the uterus, it makes a considerable curve or turn, and then divides into two branches, the smallest of which, makes a turn downwards, along the side of the os tincæ to the vagina; in the substance of which, having divided
into

into many small branches ; these branches lose themselves by anastomosing with the branches of that from the other side.

The largest branch passes up the edge of the uterus, in many windings and convolutions, continually sending off branches into its substance, many of which anastomose with the branches of the pudica interna of the other side, and with those of the spermatic arteries.

Having got as high as the fallopian tube, the remaining trunk passes from thence to the ovarium ; where, meeting with branches of the spermatic artery, it thence terminates by anastomoses.

About an inch, before these arteries enter the uterus, they detach branches to the bladder, by which that organ is supplied with blood.

I do not know that it has yet been discovered in the unpregnant state, whether any of these arteries of the uterus terminate on its inner surface or not : but in the gravid state it has been discovered.

§. V. The veins of the uterus, like those in other parts of the body, are only the continuations of those branches of the arteries, which have not lost themselves by anastomoses, with other arteries, as above described. In this organ they are extremely convoluted ; and, in many places, the sides of two coming into contact with each other, their coats become so united as to seem but one ; in which part may be found an aperture or oval orifice, through which blood may pass, immediately out of one into the other.

Veins of the uterus.

They are so extremely numerous, and intermixed with one another, that no regular description of their courses can be given ; and they are so capable of enlargement, that in time of pregnancy, some of them will easily admit the end of one's finger, especially near those parts where the spermatic and hypogastric arteries enter. At which places,

E

uniting

uniting into four trunks, viz. two on each side, called the spermatic and hypogastric veins, they then pass forth by the ways in which the arteries came; and terminate in the larger veins, viz. the spermatics in the vena cava, (the left one commonly in the left emulgent) and the pudica in the vena hypogastrica. These veins have no valves, nor are they very large after they leave the uterus.

Observation. It may be necessary to observe here, that the veins of the stomach, intestines, pancreas, spleen, mesocolon, mesentery, and epiploon, conduct their contents into the vena portarum; and that by the vena portarum, all this blood is conveyed through the substance of the liver, and from thence conducted by the vena cava hypatica, into the vena cava itself, before it returns to the heart.

But the veins of the uterus, vagina, bladder, kidneys, and lower limbs, convey the blood from their respective places directly to the vena cava, without ever passing through the liver in its return.

Inference. Hence it appears, that when obstructions and inflammations ensue in the liver, the stomach, intestines, pancreas, spleen, mesentery, mesocolon, and the epiploon, must all be affected also; because the return of the blood from those parts to the heart, must be retarded, in proportion to that degree of obstruction which has happened in the liver. Now as the obstruction of the venal blood increases, and becomes more general in those parts, there will be a greater resistance to the influx of the arterial blood into them; hence, a larger quantity of it must pass into those arteries which supply the other parts of the body; and, as the kidneys, bladder, uterus, vagina and lower limbs, are depending parts, it is not improbable, but that more of this blood may be conveyed to them, than what their veins are able to return duly to the heart; hence, bloody urine, uterine hæmorrhages, hæmorrhoides, and swelled legs, &c.

Happy it is for child-bearing women, that the blood conveyed into
those

those parts last mentioned, doth not pass through the liver in its return to the heart !

§. VI. Besides the sanguiferous vessels, there is another species, ^{Lymphatics of the uterus.} with which the uterus is furnished, called the lymphatics, whose office is to carry a pellucid fluid called lymph.

These vessels are so very numerous, and their distribution so extremely intricate, that a particular description of them cannot be given. But, as to their origin and use, these points have been so fully explained by the most ingenious Dr. William Hunter, that I shall recommend the reader to his works.

There are also many excretory glands in the uterus, particularly on ^{Lymphatic glands.} its inner coat ; from whence that discharge, called the fluor albus, doth chiefly proceed.

§. VII. With respect to the nerves, it becomes needful in this ^{Nerves.} work, to describe them, so far as can serve to elucidate the sympathy, which, is well known, subsists between the uterus, and some other parts of the body ; to which end, I shall begin with the two intercostals.

The intercostal nerve of each side, having originated by branches from the fifth, sixth, ninth, and tenth cephalic nerves of the same side ; and also from the first and second of the spinal nerves ; it then descends into the thorax and forms a ganglion, from which a branch is sent to the heart, and there joined by another branch from the eighth cephalic nerve of the same side.

After this, the intercostal nerve descends upon the side of the spine, receiving additional nerves from between the vertebræ ; and then, having penetrated the diaphragm, it soon forms another ganglion, which likewise receives branches from the eighth pair of cephalic nerves. From thence, it descends on the side of the abdominal

spine, and detaches branches to serve the intestines, liver, spleen, pancreas and kidneys.

After this, it descends into the pelvis, on the side of which, it divides into branches, some of which are distributed to the uterus, ovarium, bladder, rectum, and neighbouring parts.

The eighth pair of cephalic nerves, sends branches also to supply the lungs, gula and stomach; from which connections, we can account for the sympathy which exists between those parts, the heart and the viscera of the pelvis.

Case I.

§. VIII. Having a desire to take a new survey of some particular parts of the female subject, and to discover if there was any passage which led from the cavity of the uterus, more directly to the ovaria, than that discovered by the fallopian tubes: I applied to that experienced, and most excellent anatomist and surgeon, Mr. John Hunter, who injected the abdominal arteries of a young woman for me, in the beginning of November 1757, by which operation they were nicely filled.

Then, having examined the body, and wrote such observations as I thought useful to the present work, we took out the viscera of the pelvis, in order to try the experiment I had thought of, which was this, viz. to tie the extremities of the fallopian tubes, and throw an injection into the cavity of the uterus, by way of the vagina. Accordingly,

We first tied the extremities of those tubes near to the fimbriæ, then, having filled a syringe with flake-white and water, we placed it in the vagina, so as to make its pipe correspond with the os tincæ, and bound it fast. This being done, the injection was then forced into the cavity of the uterus; the result of which was, that by the time the cavity of the uterus was well filled, the injection run out at the sections of the spermatic and hypogastric veins; which sections were

were in the duplicature of the broad ligaments, at the distance of above an inch from the side of the uterus, and which we had left untied: but we could not find any part of the injection in the substance or vessels of the ovaria; from whence we concluded, that if there were any passages which led directly from those parts into the cavity of the uterus, they must certainly be those of the minutest kind.

By inspecting the inner surface of the uterus, we observed there were many small apertures, or orifices, through which the injection had passed from the cavity into the uterine veins; and by dividing the uterus into several pieces, we found that the injection, (viz. the white part of it) did remain in the veins through most of its substance.

In examining the ovaria, the left one appeared to us to be diseased; but in opening the one on the right side, we found a calix in its upper outer angle large enough to contain an ordinary pea.

The side of the calix, next the coat of the ovarium, was extremely thin, and seemed to us to have been lately perforated, for the cicatrices of this part of union were scarcely closed; and the other part of the calix, which did not lie contiguous to the coat of the ovarium, was thick and very firm.

Mr. Hunter now observed to me, that, in all those which he had inspected, he had always found the calices in the upper outer angle of the ovaria.

In a few days after the above experiment was made, I was Case II. called to a poor woman at the distance of about four miles. I hastened thither, but before I arrived she was dead; the person who attended not being able to perform the delivery.

The next day I opened the body, and found the child, which was pretty large, lying across the uterus. It being taken out, there appeared a large perforation in one side of the uterus near the cervix, and the abdominal cavity considerably filled with coagulated blood.

The

OF THE FEMALE ORGANS OF GENERATION.

The uterus being next taken out, its form resembled that of a flask. At the cervix its substance was five-eighths of an inch thick, and in the body half an inch thick.

The texture of its substance was not so compact as that of an ungravid uterus, for its vessels were so extremely enlarged, that some of them, particularly two, on each side, at that part where the spermatics enter, and two at that part where the hypogastrics enter, were so capacious, as easily to receive the end of my finger.

On the inner surface of the vessels, both large and small, there appeared many orifices of anastomosing vessels, some so large as to receive the end of a goose's quill, and others smaller in proportion to the sizes of the vessels in which they were.

In some places these anastomosing trunks or vessels run immediately from the side of one vessel to that of the next, and opened into it at a very little distance from the other; and in some other places, where the sides of vessels lay contiguous to each other, those coats were so united or joined as to seem but one, in which places there were apertures as if made by the point of a lancet, through which the blood could pass immediately out of one into the other.

The lateral
orifices of the
uterine veins.

The inner coat of the body, namely, that surface which surrounds the cavity of the uterus, was covered with a villi or shag, somewhat deeper than that in the virgin state; amongst which the apertures, which I here call the lateral orifices of the uterine veins, were manifest, and appeared as if made by the point of a lancet in direction of the veins.

Having dilated some of those apertures which were in the sides of the veins that lay next the cavity, I observed the orifice in the other side of the same vessel, (as I have mentioned before) which opened into the others that lay next behind them, and so on through the whole substance.

These orifices, and the short anastomosing trunks also, were most
4 numerous

numerous about the upper part of the cervix, and near to the fundus.

The internal orifices of the fallopian tubes appeared on the inner surface of the uterus, a little above the middle of its cavity, and were large enough to admit the end of a catheter to pass into them.

The tubes themselves were nine inches long, and their diameters also, during their whole length, were much enlarged.

The ovaria were two inches from the sides of the uterus, so that their ligaments also were a little extended. Having carried this uterus, in a day or two after I had examined it, to Mr. Hunter, in order to shew him the lateral orifices; he observed them, and proceeding farther, by opening the ovaria, he found an ovum as large as a common pea; one edge of which laid closely contiguous to the coat of the ovarium, and was situated in the upper outer angle of it.

What I have advanced concerning the apertures, called lateral Observations. orifices, may perhaps occasion some matter for dispute, especially among those, who are very fond of controversies, because, so far as I know, those orifices, which have been observed on the inner surface of the uterus, have not been explained in the same way.

As soon as I had wrote the two cases above-mentioned, I shewed them to several of my friends; informing them, at the same time, that it was my real opinion, the menstrual flux must be made by those orifices, and not from the extremities of arteries, as commonly believed.

Nevertheless, about four years afterwards, being desirous to know more particularly what had been said on the subject, I looked into the works of such authors as I could meet with, and found that
several,

OF THE FEMALE ORGANS OF GENERATION.

several, namely, 1^o Highmore, 2^o Spegelius, 3^o Maureceau, 4^o Winslow, 5^o Littre, 6^o Morgagni, and 7^o Dr. Burton, had mentioned their having seen orifices, on the inner surface of the uterus, filled with blood ; especially in women who had been hanged, and in those who had died in the time of the catamenia, which orifices I believe to have been such as I have described.

Nevertheless, if I mistake not, the sum of all they advance means only this, to wit, that they believed them to be the orifices of short veins, whose other ends opened into what they called the sinuses of the uterus ; now, in my opinion, those sinuses are nothing else than the dilated veins above-mentioned, and their short vessels, only the little trunks which I have observed, are in the anterior substance of the uterus.

The very learned doctor Astruc has published a copious and very laborious treatise on the structure of the uterus and the diseases of women, which treatise I first met with in the year 1762. I shall quote him on this subject.

In vol. I. §. II. he says :—“ But what constitutes the most important, in the distribution of the blood in the uterus, is that, from each point of re-union of those veinous anastomoses, at the place where the two vessels communicate with each other, and where the conflux of blood is formed often, even in different places along the veins, or their anastomoses, there rises perpendicularly a little projection, or a little appendix of a vein of the same size, which

1^o *Corporis humani disquisition. anatomic. lib. iii. part. iv. cap. 4.*

2^o *De humani corporis fabrica, lib. viii. cap. 20.*

3^o *Histoire de l'Academie des Sciences, ann. 1720, part xvi.*

4^o *Exposit. anatom. duobus ventre, p. 574, edit. in 4to.*

5^o *Histoire de l'Academie 1701, p. 293.*

6^o *Adversaria anatomica, advers. i. §. 33, and iv. §. 27.*

7^o *Essay towards a new system of midwifery, p. 17, 18.*

“ pierces the internal coat of the uterus, and terminates on its surface.
“ These venous appendices are only sensible in women who are pregnant, and only during their last months of pregnancy ; but it is
“ there found, that they project into the uterus three or four lines, in
“ places where the placenta adheres to it; that by these projections
“ they sink into, or as it were, bury themselves in proportionable
“ hollows or beds, which are formed in the substance of the placenta;
“ that they conduce, by this means, to strengthen the adhesion of the
“ placenta to the uterus ; and, moreover, that they emit through
“ their extremities, which are open, the blood of the mother into the
“ cellulæ of the placenta, from whence it is absorbed by the umbilical
“ veins, and conveyed to the embryo.”

Although I pay the greatest deference to the opinion of this author, and to that of those above-mentioned, not doubting but that they gave their sentiments fairly, as they believed; yet, as I have not been able to discover the short veins leading from the inner surface of the uterus into what is called its sinuses, nor the projections called appendices ; but in place of them have seen what I have called the lateral orifices, &c. I cannot but abide by this opinion, 'till farther proofs decide it ; at which time, if alive, I shall readily assent to the truth, be it for me or against me.

C H A P. VI.

OF THE CATAMENIA.

SINCE my first publication of this work, it has often been a question with me, whether some principal or energetic power, inherent in the uterus (similar to those, which are implanted in the liver, pancreas, kidneys, &c. and which enable them to perform their respective functions) do not produce those discharges called menses? But it is my opinion still that they flow from the lateral orifices of the uterine veins, described, Chap. V. §. V. and VIII. And that the above question requires farther attention, is more evident to me, from a few observations given me by my most valuable friend, Mr. John Hunter, in his lectures on the Theory and Principles of Surgery; which observations being in point, I here insert with his permission. When speaking of the blood, he says,

“ If the life of the blood is destroyed instantaneously as often happens
 “ in persons killed by lightning; and also in consequence of some
 “ sudden deaths by diseases, coagulation does not take place in the
 “ blood: But, if this life is allowed to die slowly, the blood in that
 “ case coagulates; owing to an action arising in its life, in consequence
 “ of the stimulus of death, and which takes place before the death of
 “ the blood is produced; and, in this respect is exactly similar to a
 “ muscle.

Having offered some illustrations, he instances the menses, and says,
 “ The blood discharged in menstruation, is neither similar to blood
 “ taken from a vein of the same person, nor to that extravasated by an
 “ accident, in any other part of the body; but is a species of blood,
 “ changed, separated, or thrown off from the common mass, by an ac-
 tion

“ tion of the vessels of the uterus, in a process similar to secretion ; by
 “ which action the blood having lost its living principle, it does not
 “ afterwards coagulate”.

He then adds, “ If the menses are natural, and the person healthy,
 “ they do not coagulate ; but, the case being otherways, coagulation
 “ takes place, and they come away in clots, as not unusually happens
 “ about the change of life. Now, says he, it follows ; “ That when
 “ the action of the constitution is by any means weakened or obstructed
 “ so much as not to be able to produce those discharges, in a due quan-
 “ tity, quality, and time, such an evil cannot be remedied by taking
 “ away an equal quantity of blood from the common mass by vene-
 “ section. Could we indeed find a substitute for this action, as well
 “ as for the simple evacuation of blood, our art would approach much
 “ nearer to nature ; and thereby render our method of cure more
 “ certain.”

Should these periodical discharges depend on any other cause than that above assigned, viz. an energetic power implanted in the uterus, I know not any other data, which serve to explain; and therefore shall only instance what we know of the catamenia by effects.

In this Country, the most usual time of their commencement is about the age of fifteen ; and that of their total cessation about forty-five or fifty. They compleat their most regular periods every month, that is to say, when they have continued from three to six days they go off, and return again about the beginning of the fourth week. Before their first eruption the virgin is usually indolent and short breathed. She is affected with disorders of the head, either heaviness or shooting pains, drowsiness or want of sleep, frightful dreams, awaking with startings, &c. the pulse is now and then oppressed ; sometimes the face appears of a yellowish cast ; there is commonly a dusky colour about the eyes ; and the breasts grow turgid. At the approach of it, or a few days before, (the foregoing symptoms continuing) she

feels a pain about the loins, groins, and pubes, attended with an uneasiness, and sense of bearing down. In some, the approach is indicated by a tumefaction of the labia pudendi; tension, heat, and sensibility of the vagina; piles, frequent inclination to make water, and a heat in urine.

They for the most part break forth pretty copiously, not only at the first eruption, but afterwards, with a fresh red colour, which continues three or four days, and then changes paler by degrees. I have known instances, however, where they observe this progress for about a week, and then change red, and go entirely off the same day.

The quantity discharged at each period, differs very much in different women, and in different climes. But in this country it is usually from two to six ounces. Dr. Denman, in a late publication called *Introduction to the Practice of Midwifery*, treats this subject in a very ingenious and explicit manner. He says, “In Greece, and other hot countries, girls begin to menstruate at eight, nine, and ten years of age; but advancing to the northern climates, there is a gradual protraction of the time, till we come to Lapland, where the women do not menstruate till they arrive at mature age; and then in small quantities, at long intervals, and sometimes only in the summer.—In this country, he says; Girls begin to menstruate from the fourteenth to the eighteenth year of their age; and sometimes at a later period, without any signs of disease. But, if they are luxuriously educated, sleeping upon down beds, and sitting in hot rooms, menstruation commences at a more early period.—At the time of their first beginning to menstruate, he says, Their complexions are improved; their countenances more expressive and animated; their attitudes graceful; and their conversation more intelligent and agreeable. The tone of their voices become more harmonious; their whole frame, but particularly their breasts, are extended and enlarged; and their minds are no longer engaged in childish fears, pursuits,

“pursuits, and amusements”. The appearances here enumerated, by Dr. Denman, differ, in several particulars from those described by me. Yet, to say that they are not real facts, would be wrong. I make no doubt of his having observed them; nevertheless I am led to believe that, they will be more frequently met with, after the menses have become regular, than at the time of their commencement. But to return; he says, “The quantity of blood discharged at each evacuation depends upon the climate and constitution, and it varies in different women in the same climate, or in the same women at different periods; but there is a common quantity, to which, under the like circumstances, women approach, and it may be estimated in this manner: Supposing the quantity to be about eighteen ounces in Greece, and two ounces in Lapland, there will be a gradual alteration between the two extremes, and in this country it will amount to about six ounces.”

Besides, what Mr. Hunter has observed with respect to the quality of this flux, there are circumstances, which vary in different women; as for instance, if a woman is very healthy, the whole mass of blood consequently good, the flux will appear of a fresh red colour; but if she is unhealthy, the blood and other juices consequently poor, or become acrimonious, the flux is usually more pale, and its smell more disagreeable, in proportion to the degree of the acrimony of the fluids.

As there is some degree of foetidness, especially in the declension, and chiefly observable in women of a gross and corpulent habit, it has been thought that there is something pernicious in their quality: but this is an absolute error.

The natural period and appearances of the catamenia being now finished for this time, the woman finds herself relieved; her countenance becomes bright and lively; her appetite better; her breasts subside;

subside; the uneasiness and pains are gone; and she enjoys health till a day or more before the next period: when the previous symptoms, but not in so great a degree, and then the catamenia, come on, continue, and go off as they did before.

§. II. When they begin early among us, they usually cease about forty; or even if they begin at puberty, and the woman happens to have many children or miscarriages, they will sometimes leave off at forty.

There are some women, especially those who are very corpulent, that have them cease as early as thirty, and yet enjoy a tolerable state of health.

On the contrary, some have had them to the age of fifty or sixty, and at these years have born children. Nay, some authors have instanced women who have had them regular to the seventieth year of their age.

When they begin later than the usual time of puberty, as for instance, about eighteen or twenty, they commonly continue to upwards of fifty.

Some have a discharge in place of them, not from the uterus, but from some other parts of the body; and others never have them at all. These scarcely ever enjoy a good state of health.

As to their periods, some have them every fortnight; that is, fourteen days of intermediate space. Others only in five or six weeks; and others more irregular than these, especially near the time of their first eruption, after miscarriages, sometimes after mature childbirth, and almost always towards that time when they finally cease.

Their quantity varies also very much, not only in different women, but often likewise in the same person at different times; especially

cially after miscarriages, accidental obstructions, and towards the approach of the final cessation. Sometimes they return in very small quantities, and at very uncertain periods. At other times they stop for two or three periods, and then come on so copiously as to resemble a flooding, even coagulating into clots, which make the woman, and those about her, imagine that she has miscarried.

As to different women some have them in a less quantity than one ounce; which, changing in colour, and quality, degenerates into a serous discharge, often resembling the fluor albus.

And finally, some have them in a larger quantity than six ounces, and yet enjoy health.

Women who have them to flow from particular parts of the body, ^{Causes of} and not from the uterus; secondly, who have them not at all; thirdly, ^{barrenness} &c. who have them of a bad quality, and too small a quantity; fourthly, those who have them too frequently; and fifthly, such as have them too copiously, although the quality may be good, are liable to barrenness; for if they happen to conceive, they are apt to miscarry. Nevertheless, I will not deny, but that under some of these circumstances, women may be found who are prolific, though I believe they are but few.

It cannot seem strange, therefore, that many women are not prolific, especially if we candidly consider how often they are mismatched; and how often the deficiency may happen on the male side, either arising from some natural fault in the organs themselves, or from an unhealthy state of the semen, or from both together, brought on by diseases, &c. which defects may probably equal, if not exceed, those that happen on the female side.

C H A P. VII.

OF CONCEPTION.

MAN, during this embodied state, is unable to find out the original causes of things; or even to proceed far in the knowledge of effects, which, though sometimes taken for causes, prove often to be only the effects of other effects. It is therefore no wonder that the mode of generation remains so little understood, notwithstanding the researches of the curious and inquisitive in almost every age.

Some may say, and perhaps justly too, that such a discovery would be but of little use to mankind in general. Granting this, however, such enquiries must be allowed to be both curious and interesting; and as it is impossible to determine how far they may be pursued with success, by repeated and accurate observation, it will not, I hope, be deemed presumption in me, to lay before the public what I think upon the subject. I shall not take up the reader's time with a particular detail of each theory that has been raised upon it, but content myself with laying before him a short view of the principal opinions concerning it, together with such facts as seem to be well attested by authors of eminence, and tend to illustrate it; after which, I shall deliver my own sentiments as the result of the whole.

First opinion. §. I. The opinion of the ancient philosophers concerning conception, was, that the male seed alone was capable of forming the fœtus; and that the woman only gave it lodging, and supplied it with blood, necessary for its nourishment in the womb, after it was entirely formed.

§. II. The

§. II. The second and more common opinion was, that the fœtus Second opi-
was formed by the mixture of both seeds in the womb, either by a nion.
virtue unknown, or else by an arrangement of their particles in
manner following: The seed being received and contained in the
bottom of the womb, the orifice shut of itself, after which the seed
being embraced and pressed by the womb, all its particles began to
take their parts; the most subtile continued in the centre, and by
consequence the grosser and superfluous parts were thrust towards
the surface, where they produced the after-birth, the navel-string
and the membranes in which the fœtus was contained. In the mean
time, all the particles calculated for forming the different parts of the
body, disengaged themselves by the force of their motion, and either
joined or parted according to their mutual conformity or disparity,
so that those suited for the head assembled where that part was to be,
and those for the rest of the body at their respective places.

§. III. The third opinion, to which the two former gave place Third opi-
began in the sixteenth century, by the discovery of vesicles, or eggs nion.
in the ovaria or female testicles, and by some fœtuses being found
in the abdominal cavity and fallopian tubes, &c.

According to this opinion, the female testicles were like a bunch
of grapes or a bee-hive; they consisted of vesicles, each of which
had a stalk so that it might be disengaged without hurting the rest,
or spilling the liquor it contained; each vesicle contained a little
animal, almost compleat in all its parts, after the same manner as
the eggs of fowls; the vapour of the male seed which bedewed the
womb, being conveyed to the testicle, it swelled that vesicle which
appeared nearest to maturity, or was most susceptible of fermenta-
tion; and that vesicle having disengaged itself from the ovarium, fell
into the cavity of the tuba fallopiana, which conveyed it immediately
to the womb; in which it shot out small roots, like an ear of corn

sown in tilled ground, which roots, in conjunction with those that sprung from the womb itself, formed a large texture of vessels, called the placenta, by which it received the necessary blood for its growth and nourishment, the surplus being returned to the mother.

According to this opinion, the woman furnishes all the necessary feed for forming the foetus, and gives it not only lodging, but nourishment for nine months; whereas the man contributes only spirits, which animate and fecundate the egg by touching it*.

Fourth opinion.

§. IV. About the latter end of the sixteenth century, Lewenhock having discovered animalcula in the male semen, a new theory was raised, which is not entirely exploded, as may be seen in the writings of some late authors. According to this theory, the semen masculinum being emitted from the penis into the cavity of the uterus, it from thence passes into the tuba fallopiana, and by that tube one of the animalcula finds its way to the ovarium, into the substance of which it penetrates, and then enters into one of the ova. The ovum being now pregnant with this little animal, is squeezed from its husk through the coat of the ovarium, and, as it passes forth, is seized by the fimbriæ, which conduct it into the tube, and by this tube it is conveyed into the cavity of the uterus, where, absorbing the surrounding fluids by the extremities of those vessels on its surface which were opened by its detachment from the ovarium, it is there nourished to the time of its birth.

This theory is really ingenious; yet, as Dr. Smellie observes justly, it is attended with circumstances hitherto unexplicable; namely, the manner in which the animalculum gains admission into the ovum, either while it remains in the ovarium or sojourns in the tube, or is deposited in the fundus uteri; and the method by which

* Dionis on the generation of man.

the

the vessels of the navel-string are inosculated with those of the animalculum.

§. V. Besides, it is the opinion of the most learned men in this age, that these animalcula are only the organic parts of matter. (Mr. Needham is said to be the discoverer of this.) Amongst others, who are of the same opinion, we find Linnæus and M. de Buffon, the latter of whom has wrote elegantly and ingeniously on the production of animals and vegetables, (Hist. Nat. tom. II. chap. 2, 4, and 6.) I wish I could say also impartially. For, if I mistake not, he has neither treated Graaf nor Harvey with candor.

The substance of what this gentleman advances appears to be this: The substance of M. de Buffon's theory.

“ 1°. That animalcula, so called, are not animated, but mere machines,
 “ or organic parts, fit to compose an organized body. 2°. That females have a feminal fluid, in which animalcula appear, as well
 “ as in that of the males. 3°. That this fluid is found to exist in
 “ both the vesiculæ of the testes, and in the glandulous body.
 “ 4°. That no egg exists in the testes*, because it is not to be
 “ found. 5°. That this female semen, issuing from the nipple of
 “ the glandulous body, continually moistens the cornua uteri; and
 “ can easily penetrate the same, either by the suction of the texture
 “ of the cornua, which though membranous does not fail to be spongy,
 “ or through the little opening in the extremity of the cornua.
 “ 6°. That as the female feminal fluid contains fewer organic parts
 “ than the male; it happens (says he) there is about a sixteenth
 “ more male than female children: and the same cause produces the
 “ same effect in all the other animals, in which one has been able to
 “ make the observation. 7°. That conception takes place in the
 “ cavity of the uterus, by a mixture of the seeds of the male

* I suppose he means the ovaria.

“ and female, and that if the organic parts of the male semen
 “ exceed those of the female, a male fœtus will be produced,
 “ and vice versa. 8°. That the natural place for the human
 “ fœtuses is in the cavity of the uterus; but they may be formed
 “ in all parts where the two seminal fluids can unite, as in the
 “ tubæ, not impossibly in the ovaria, and often perhaps in the va-
 “ gina, though they cannot be retained there. 9°. As an argument
 “ against the notion that ova are conveyed from the ovaria to the
 “ cavity of the uterus, he says, if this was the case, most fœtuses
 “ would be found in the abdomen, instead of the uterus, for the
 “ upper extremity of the tube being separated from the testicle, the
 “ pretended egg ought frequently to fall into the cavity of the ab-
 “ domen; this happens (says he) exceeding rarely, and I do not
 “ know that it is true, that it has ever happened in the manner we
 “ are speaking of. I imagine, the extra uterine fœtuses have escaped
 “ by some accident, either from the tubes of the uterus, or from
 “ the uterus itself. And 10°. That all the parts of the fœtus exist
 “ at once, and that it is only the developement of them that is
 “ successive.”

There are some of this gentleman's thoughts which are truly in-
 genious; particularly those concerning the animalcula, and the suc-
 cessive developement of the parts of an embryo. But how far his
 assertions, that no ovum can be found in the ovarium, that the female
 seed can pass so readily from the ovaria into the cavity of the uterus,
 to meet that of the male, in order to perform conception; that the
 fœtus being there, should be so cunning a little being, as to slip
 away through the fallopian tubes into the cavity of the abdomen, &c.
 are reconcileable to the following facts, I must leave to others, who
 are much more able than me to judge.

§. VI. Dr. D. Monro has given a case in Smellie's second volume, History I. page 14, wherein a girl of fifteen years of age, having several times had periodical symptoms of the catamenia without its appearance, applied to his father, who, making enquiry, found the os vaginæ was entirely closed by the hymen. The hymen being opened by the lancet, three pints of thick blood was discharged, and she did very well afterwards.

Dr. George Macaulay gives another case in the same vo- Hist. II. lume, page 15, of a young woman about nineteen years of age, whose os vaginæ was also entirely closed by the hymen. Upon dividing the hymen with a lancet, about two quarts of thick black blood were discharged, and after that she did very well.

In 1750, I was present, when Cesar Hawkins, Esq; serjeant Hist. III. surgeon to his majesty, divided the hymen of a little girl by the scissars, which hymen covered the os vaginæ, all except a little hole which admitted the end of a probe. Cases of this kind have happened so often, that to instance more of them would be needless here.

Mauriceau, in his 489th observation, has given a very re- Hist. IV. markable account of a woman who conceived, and was delivered of a child, although her hymen had not been broke in coition.

Ruyfch (tom. I. observat. 22.) has given another remark- Hist. V. able case, wherein he was called to a woman in labour, whose hymen was intire, and prevented the delivery of the child, by whose head it was distended. An incision being cautiously made, he perceived another thick membrane farther in the vagina, which being also opened, the woman was delivered.

Hildanus, in centuria III. observ. 60. gives another case near- Hist. VI. ly similar to the two preceding, namely, a young woman at Paris, who being married, could not admit the embraces of her husband, who on that account sued for a divorce; but as she sus-
pected

pected herself with child, several eminent surgeons examined the parts, and found the entrance to the vagina shut up by a strong callous membrane, in which were small openings, sufficient to allow the menstrual discharge.

This membrane being divided, and by proper applications kept open, the husband was satisfied, and the woman was in six months safely delivered of a full grown child.

§. VII. Now, seeing there are such proofs as these, that the os vaginæ, in some women, is intirely closed by the hymen; and that some, who had it thus closed, did conceive without having the hymen broke by coition; therefore could not have the penis admitted into the vagina; hence could not receive the male seed into the cavity of the womb, to form the fœtus according to the first opinion; to be mixed there with the female seed according to the second opinion; to bedew the inside of the womb, and from thence impregnate the ovum, in the ovarium, according to the third theory; nor to be conveyed to the ovaria by means of the fallopian tubes, according to the fourth and present opinion, it may fairly be asked, how did these women receive the semen masculinum? I answer, by absorption. Some of it, in the last case, might indeed probably pass through those holes, which were found in the hymen, to the cavity of the vagina, but the os tincæ being so far distant, it is highly improbable, that any part of it was so effectually emitted as to reach that orifice, much less the cavity of the uterus.

This notion of absorption, may seem, perhaps, at first a little strange; but if we will only attend to some other circumstances which have happened, and to other effects which are daily produced in the human body, there will, I apprehend, appear some probable reasons to support it.

§. VIII.

§. VIII. Harvey speaking of does (*anatom. exercit.* page 413.) says, Having made several dissections in the Month of October, as well before the expiration of the rutting time, as after, I could never find any seed, or blood, or the track of any other thing within the cavity of the uterus.

In page 417, he says, that, by the king's desire, a dozen of does were separated from the bucks at the beginning of October, the time of rutting being then not passed; and having dissected divers of those does, he discovered no seed at all residing in their uteruses; and yet those whom he dissected not, did conceive by virtue of their former coition, and did fawn at their-appointed time. In bitches, conies, and several other animals, he observed also, that nothing remained in the uterus, after coition, for many days together.

Regn de Graaf, having dissected rabbits at different times, from half an hour after coition to the twenty-ninth day (*De mulierum organis*, cap. XVI.) amongst many other curious observations, supplies us with the following :

Half an hour after coition, he found neither seed nor any thing which resembled it, in either the vagina or uterus; the horns of the uterus seemed a little reddened, but the eggs in the ovaria were not as yet changed, unless it was a very little, from their limpidness.

In the sixth hour there was not the least appearance of seed.— But the folliculi of the ova in the ovaria, were changed red. In another, twenty-seven hours after coition, he found that the fimbriæ of the fallopian tubes embraced the ovaria; but having dissected the horns of the womb, he did not find that any ova were yet arrived. Seventy-three hours after coition, the ovaria were strictly embraced by the infundibuli of the fallopian tube; in the right tube there was now one egg, and in the right horn of the uterus there were several eggs. And in another rabbit, four days after coition, he found eggs in both horns of the uterus.

§. IX. Every

§. IX. Every medical practitioner knows, there are substances of different kinds; as for instance, of the alimentary, medicinal, and morbid classes; which being applied to parts on the surface of the human body, are absorbed, and taken up by the circulating fluids, because their effects appear at places very distant from those where applied. Can we think it less probable then, that the semen should be absorbed through the pores of the fossa magna; and when mixed with the circulating fluids, have, by their course, a peculiar tendency towards such ovum, or ova, in the ovaria, as are ready for fecundation; especially as it is a fluid designed by nature for that purpose? Surely not.

But granting that it has been thus conveyed to the ovaria, and has, either by means of circulation alone, or aided by another absorption, entered through the coat of such an ovum, and mixed with its contents; yet, what shall be said of the next stage (if I may so term it) of conception; namely, how, or in what manner can the contents of this ovum be so changed by the presence of the male seed, as then, and not 'till then, be enabled to range themselves into the respective parts of an animate body? My attempting to answer this question, may be judged by many too assuming:—yet, relying on the candour of my readers, I will venture to offer some ideas which have presented themselves to my mind; whether they are new or not, I will not take upon me to decide, as I have not time to read the books of many authors.

First, In all bodies, whether animal, vegetable, or mineral, there appears to reside a something superior to matter; not only during their native states, but even after dissolution, and the action of a very powerful fire, they are found possess'd of affinity, attraction, repulsion, and the power or property of acquiring new forms, magnitudes, colours, &c.—Whether this something may be called soul or spirit, or affords any efficacy towards the commencement of the spirituous
part

part of animated body, I cannot take upon me to decide; though it may be so.

Secondly, That the first parents of every kind and species of, (at least) animals, must have been endowed at their first creation, with a specific power to convey, in time of conception, the spiritual part called soul, as well as the corporeal part called body.—Had it not been so, we must then suppose, that the spirits of all animals were created at the beginning of the world, and since that time kept somewhere in reserve for their embodied states; or that every new production must require a new creation!—which suppositions, in my humble opinion, would be too absur'd, if not impious, to be admitted.—Now should it be allowed, that the parents, either the male singly, or conjunctly with the female, have power to convey the spiritual part, as well as the corporeal, then I hope the arrangement of the constituent particles, to form an embryo in the ovum, will be better understood, not only from what has been already said, but from what follows.

§. X. We see eggs of the bird kind, which, having been impregnated by the male of their own species, produce birds as prolific as their parents. Whereas, those which are not fœcundated by the male, though known to have all the visible parts that can be seen in the others which have been impregnated, produce nothing.

We see also the mature females of quadrupeds, &c. having vesicles or eggs in their ovaria, which being impregnated with the male seed of their own species, produce animals as prolific as their parents; Whereas others, that are not impregnated, produce nothing. And moreover, that such animals as are capable of being impregnated by the male of another kind, as an ass by an horse, &c. the animal thus unnaturally produced, though furnished apparently with the organs of generation,

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yet

yet wants the prolific quality, and consequently cannot propagate.

But in the breed of male and female of different species of the human kind, as for instance, a white european man, and black african woman; also amongst brutes, viz. a british fighting cock, and tame hen; an arabian horse, and dull english mare, &c. the prolific power still continues; and there is a peculiarity in the temper of the mind, and figure of the body of this offspring, which seems to indicate, that it did also receive the mental part, as well as corporeal, from the parents. Besides, comparing the contents of any bird's egg, not impregnated with such as have been fœcundated; in the former, there are seemingly all the materials provided by the female to form the chick; so that the prolific touch of the cock is only wanted for animation. However, it is evident, in the human kind, that the male conveys some matter, seeing that such diseases as scrophula, gout, &c. are conveyed from a man to his children.

In the vegetable kingdom we may also observe, that the seeds which are fœcundated with the male farina, produce plants endued with the same properties as their parents; whereas, such as have not been fœcundated, produce no succession, although they appear to have every part that can be seen in those which are. But in this work of vegetable conception or impregnation, whether the farina mixes with the contents of the female ovum or seed, and affords an equal share in forming the germ or embryo of the new plant? Whether the germ is only a particle of the farina; and consequently has no more than cloathing and nourishment from the ovum? Or, whether the ovum furnishes the rudimental parts chiefly of the new plant; and consequently requires little more (if any thing at all) than the prolific touch or vegetable principle from the farina, whereby its prolificness may be conveyed on by a succession? are points which botanists (whose researches in this age have far exceeded those before them) are best able

able to decide. As to me, judging from my own observations and those of others, several instances, I think, may be given, in both the animal and vegetable kingdoms, serving to prove, that in the act of generation of one species, the female receives only from the male the prolific touch; and in that of another, some corporeal part also. There may, however, some objections arise, concerning this generative contact made by the feminal parts of the male and female, in order to produce a new plant; seeing that sections of the elder, poplar, willow, &c. and the polypus also (which partakes of this kingdom) can grow into the forms and magnitudes of those from which they were taken; and appear to us to have the same properties*. But if we reflect on the many prodigies of nature, we cannot think it strange that those bodies should have a power peculiar to themselves, to convey their prolific qualities down even to several generations, without renewing this generative contact of feminal parts. Yet I am inclined to think, that if the feminal organs of those plants, which are produced from sections, were taken off for a few years, before the times of their maturity, and then sections taken from them to produce new plants, that those sections would, in time, lose the prolific or reproductive power, and consequently die.

However, leaving much to future discovery, let us turn to the next stage of animal generation, where we meet with more perspicuity; namely, that the ovum is fecundated before it leaves the ovarium; and that, according to the ordinary course of nature, it is then conveyed by the fallopian tube to the cavity of the uterus, where the formation of the fœtus is afterwards compleated.

I say, according to the ordinary course of nature; for instances have occurred of fœtusses being formed in the ovarium, some found

* Besides these, we may instance the aphis or pueron, which is wholly of the animal kingdom.

in the cavity of the abdomen, and others in the fallopian tubes. Which incidents, although out of the ordinary course, have thrown more light upon this subject, than could ever have been extracted from theory ; as may be observed by only the few following particulars :

§. XI. M. de Maurice, in the philosoph. transf. No. 150. page 285. gives the history of a woman, in whose abdomen, after death, he found a male fœtus perfectly formed, about the bigness of a man's thumb, which had, just before her death, made its way into the cavity of the abdomen, by bursting the coat of the right ovarium. This testicle or ovarium, he says, was about the bigness of a hen's egg, and the laceration was longitudinal on that side which did not touch the tube. Both this tube, and the tube of the ovarium of the left side were in the natural state.

Dr. Fern, in philosoph. transf. No. 257. page 125. says, that in dissecting the body of a woman, who supposed herself to be three months gone with child, he found the womb not larger than in virgins, and a hard substance in the right ovarium, which being opened, appeared to be the skeleton of an infant.

In philosoph. transf. No. 231. page 314. he has given another history, namely, of a goldsmith's wife, who died in pregnancy, and being opened, there was found an entire female fœtus, contained in a cover or bag, which seemed to be nothing else than an elongation and distention of the tube; and an expansion or production of the broad ligament of the right side; which was evident from its continuity to these parts, and the distribution of the spermatic vessels, which were larger than usual, and passed from the extremities of the tube to the larger lump or bag.

Dr. Starkey Myddleton, in the philosoph. transf. has published a most remarkable case of a child's remaining sixteen years in the abdomen;

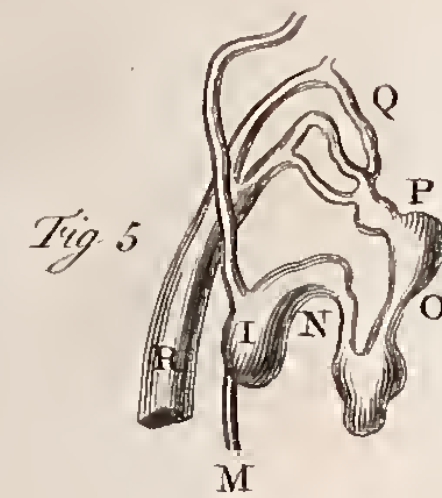
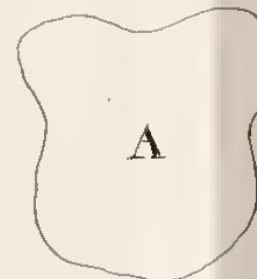
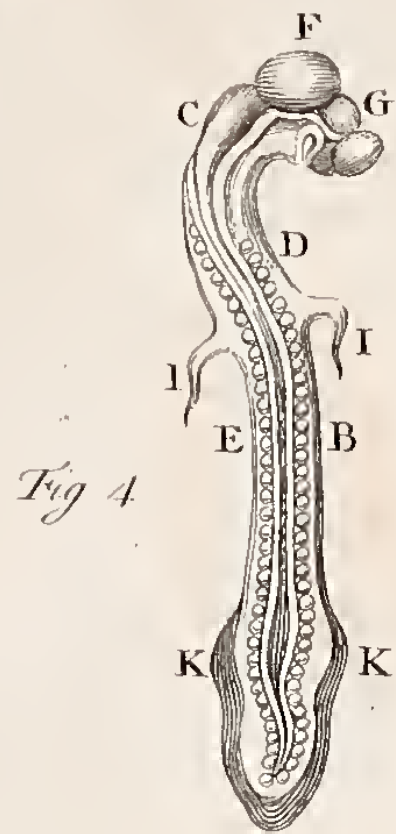
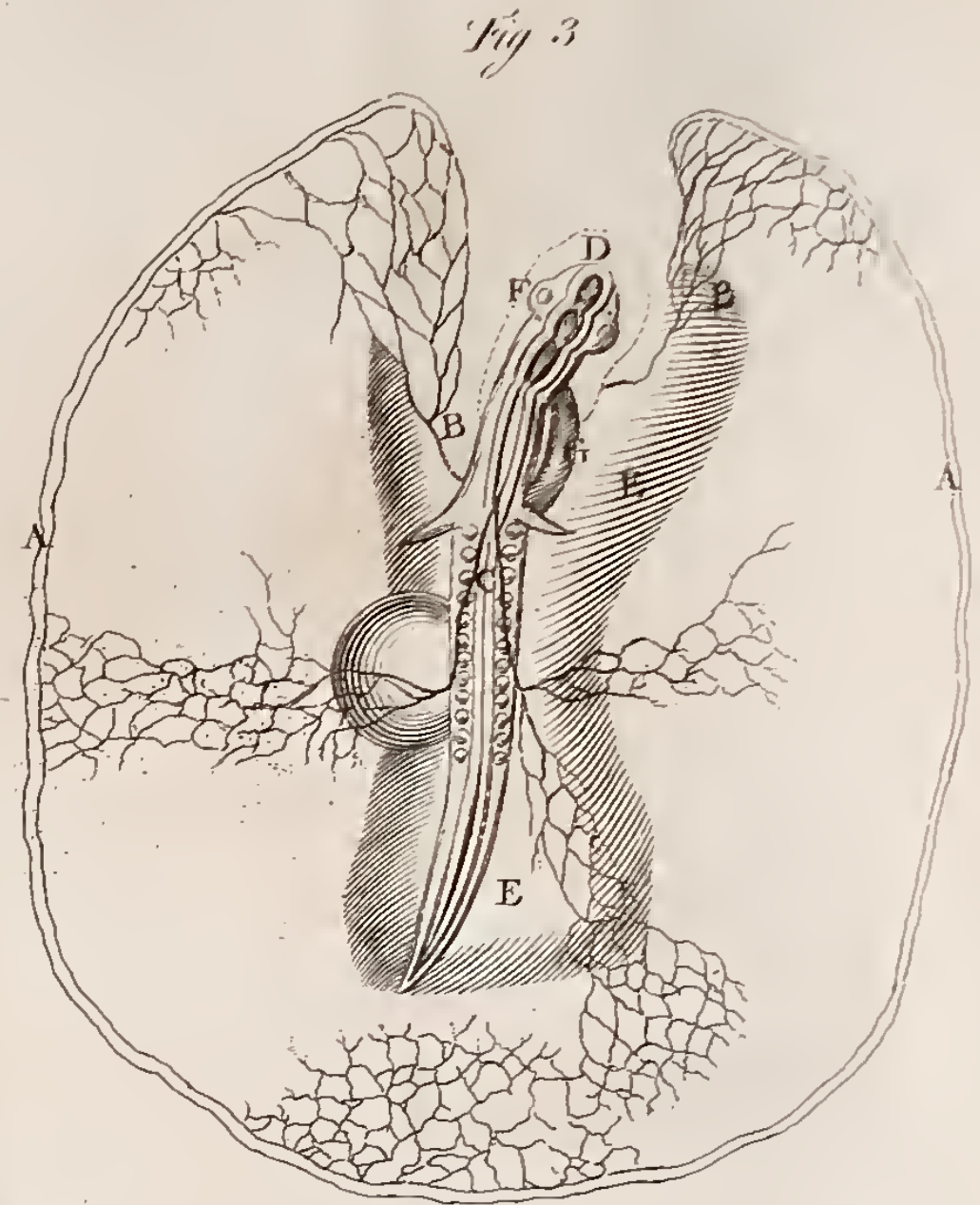
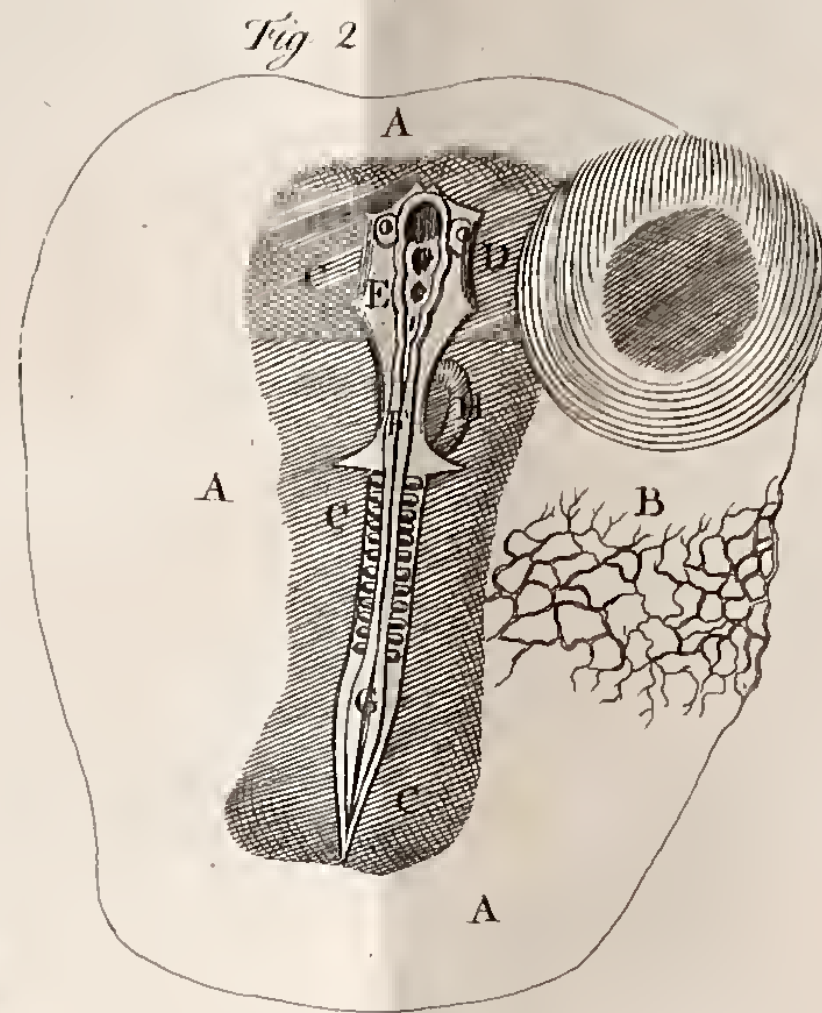
domen; during which time, the mother bore four living children; and after her death, the body being opened in presence of doctors Nesbit, Nicholls, and Laurence, the several contents of the abdomen appeared nearly in their natural state; but on the right side, within the os ilium, the child presented itself attached to that ilium and neighbouring membranes, by a portion of peritonæum, in which the fimbriæ and part of the right fallopian tube seemed to lose themselves.

In the memoirs of the academy of sciences at Paris, there is an account of a fœtus being found in the fallopian tube. See Dr. Smellie's cases and observations.

§. XII. The inference which seems to me to arise most directly Inference. from what has been said, is this; when the woman is naturally disposed to conceive, that is, when she is susceptible of it, the semen masculinum, as it emits from the penis, part of it, at least, is thrown into the cavity of the uterus, from whence it readily passeth through the lateral orifices by absorption, &c. into the circulating fluids; and such part of it as has not entered the uterine cavity, but remained on the surfaces of the fossa magna, and vagina, is absorbed by the glands belonging to them, and hence conveyed into the blood likewise. When thus mixed with the current fluids, a part of both is, in course, carried to the ovaria; where meeting with an ovum, ready or ripe for impregnation, it passeth into it, as hinted in §. IX. Animation and the arrangement of parts now commences, (probably aided by the powers of affinity, attraction, repulsion, &c.) such as are suitable to form madulla, madulla; nerve, nerves; vessel, vessels; bone, bones; muscle, muscles; and so to a perfect fœtus. If two or more ova happen to be ripe at the same instant, they not unusually become fecundated; and the woman, at the natural time brings forth as many children. The ovum being thus animalized, in a few days (as I imagine) breaks through its calix, and the coat of the ovarium also, to which it is naturally contiguous; and

and as it comes forth, the fimbriæ of the fallopian tube embrace it, the orifice receives it from them, and by way of the tube it arrives in the cavity of the uterus, before the twentieth day, as I have reason to think, from the magnitude of some embryos which I have seen after they had been expelled from the uterus about this time. What happens during its stay in this cavity, shall be considered in the following chapter.

C H A P. VIII.



C H A P. VIII.

OF THE FŒTUS IN UTERO.

HAVING endeavoured in the last chapter to elucidate the most obscure part of generation, called conception; the nutrition, formation, and the increase of the fœtus during its stay in the womb remain next to be considered; in order to which, I shall first describe, in the clearest manner I am able, an ovum femininum, as it appears when dismissed from the uterus, in the third month of gestation. Secondly, give a brief account of the circulation betwixt it and the mother. Thirdly, instance a few facts from the testimonies of some authors. Fourthly, some observations of my own, with occasional remarks on the whole; and then conclude, with an inference from this, and the preceding chapter.

§. I. An ovum, about the tenth week after conception, is commonly as large as a hen's egg, and nearly of the same figure.

Its surrounding parts (called the walls) were believed to consist only of the placenta and two membranes, namely, chorion and amnios, until Dr. Hunter discovered that there are three membranes; the exterior of which he calls the *membrana caduca, vel decidua*, and the other two by their former names.

This external membrane, he has also discovered to be a lamella from the inner surface of the uterus.

In the month of December, 1765, he shewed me an ovum in which the lamella was extremely perfect. Its exterior surface was rough or shaggy, like others which I had seen; the inner surface was smooth and loose, or detached from the chorion all round to the margin

margin of that spongy substance which seemed to be forming the placenta: but here it adhered to (or united with) the chorion; and from this part of union, the spongy part of its substance rose up and reflected over the placenta, making the exterior structure of that viscus.

This membrane had three foramina, one of which corresponded with the os uteri, and the other two with the orifices of the fallopian tubes; and as a farther proof of its being a lamella as above observed, the doctor shewed me another that was falling off, or separating from the inner part of a gravid uterus. I must own that I was struck by what the doctor called the membrana caduca, having observed the same in several of the ova which I had described, as will appear hereafter.

Nevertheless, I with truth declare, that I did not comprehend it rightly, but imagined that it was either the originating placenta, a *lufus naturæ*, or a false formation. After the doctor explained it to me, I conceived an opinion, that it served to compleat the formation of the placenta, by contracting itself entirely into that viscus, towards the latter months of pregnancy: but having communicated this to Mr. John Hunter, I was happily favoured with a fuller explanation of his brother's opinion concerning it; namely, that towards the latter months of gravidity, the caduca became gradually thinner, and more connected with the chorion, but still remained extended over it, and might be separated from it.

To be certain of this, I examined mature secundines (which had been kept in water three days,) in the presence of Mr. Alexander Corson, surgeon and ~~man~~^{decent}-midwife, March 25, 1766, and observed as follows:

The perforation made by the exit of the child was nearly opposite to the placenta. The membrana caduca, vel decidua, extended over the whole surface of the chorion as far as the placenta. It appeared
of

of a whitish colour, and was covered externally with a downy shagg.

At the aperture it was about the thickness of the chorion and amnios together, and from thence became gradually thicker, but not so much as to exceed one-eighth of an inch : its texture was spongy, yet so firm as to admit of being perfectly separated from the chorion, every where to the edge of the placenta, where it stopt; and suddenly growing thick, dense, and more whitish, it appeared to form the outer part of this edge, and then to divide quickly into two parts; the exterior of which, becoming extremely thin, extended over all the surface of that side of the placenta which lay next to the uterus. The interior portion seemed to terminate in white fibres or vessels, about a quarter of an inch within the edge of the placenta; some running through its substance, and others adhering very firmly to the surface of the chorion.

The chorion was transparent and very thin, till it came upon the inner surface of the placenta, to which it firmly adhered, and became thicker. The amnios was extremely pellucid, somewhat thicker than the latter, and separated very easily from it, every where to the root of the funis. By the strictest examination, there was no alantois to be found, nor was there any appearance of the little white body.

A part of the caduca being dried on paper before the fire, there appeared in its substance a few ramifications of extremely small blood vessels. These vessels were scarcely discernible near the opening which had been made by the child; but towards the placenta, they became gradually more conspicuous. Portions of the chorion and amnios being dried also, no vessels appeared in them.

From the above account, it is very evident that Dr. Hunter is perfectly right : but to return to our subject.

§. II. The internal parts of the ovum, are the funis, the foetus, and liquor amnii. The walls or secundines, at this time, weigh usually about half an ounce Troy; the foetus, one scruple; and liquor amnii, one ounce.

Membrana
caduca.

The membrana caduca is thick and spongy, especially as it approaches to the placenta, and is interwoven with many small vessels and fleshy fibres, which rise up shaggy on its outer surface.

The placenta is principally (if not entirely) formed by this membrane, and at this time extends usually over a pretty large space of the chorion.

Chorion.

The chorion is a clear membrane which furrounds the whole ovum, and makes the inner coat of the funis. On the exterior surface, there rise up here and there some fleshy fibres; but the inside is not so rough.

Amnios.

The amnios encompasses the ovum also, and makes the outer coat of the funis, although it is the inner of the ovum. It is a very strong and transparent membrane: the outer surface is a little rough, and adheres slightly to all the chorion; but the inner surface, to wit, that which is next to the liquor amnii, and to the foetus, is extremely smooth.

A little white
oblong body.

There has been in many of the ova which I have inspected, a little white oblong body, about the bigness of a pearl barley corn, situated betwixt the chorion and amnios, about an inch from the root of the funis; its substance is very firm; it is covered with a strong pellucid membrane, and from one end of it, there passes a small white chord or vessel, to the root of the funis. This body is not to be found in every one; and, at present, I am ignorant of both its name and use.

Funis umbilicalis.

The funis umbilicalis arises from near the center of the placenta; it is usually about an inch long, and as big as a silver probe; (though at the time of natural birth, it is commonly near a

yard,

yard, sometimes more in length, and as big as a finger in thickness) its substance consists principally of the umbilical vessels, namely, one vein and two arteries; and it is covered by elongations of the true chorion and the amnios, as already observed.

The foetus, at this time, is for the most part so well formed, *Foetus.* that the cavities of the trunk are closed; the eyes, nose, mouth, ears, limbs, fingers, toes and privities, are all manifest to the eye without the help of glasses.

It is usually about the size of a small bee; and of a white pellucid colour, and gelatinous consistence; and the head is nearly as large as all the rest together.

The liquor amnii is a thin pellucid fluid, sometimes tinged *Liquoramnii.* a little with a reddish colour: it has a brackish taste; and, notwithstanding what has been confidently affirmed, does not concreate or coagulate by heat like the white of an egg, but evaporates to a small portion of a frothy sediment. Various opinions have been given concerning the uses of this fluid: some have maintained, that the foetus is nourished by it alone; others, that it does not serve for that purpose at all; and others, that the foetus is partly nourished by it, and partly by such fluids as are conveyed by means of the umbilical vein.

These controversies have been largely discussed by Mr. Gibson, late city professor of Midwifery, and Dr. Monro, university professor of anatomy, both of Edinburgh (*Med. Ess.* vol. I. page 139, and vol. II. page 102.) to which most ingenious dissertations I shall refer the reader, and only beg leave to offer the few following thoughts.

This fluid seems to serve as follows. First, as a vehicle to contain and suspend the rudimental particles of the embryo. Secondly, by its tenuity, to facilitate the attraction and approximation of those particles, in order to form the several parts of the foetus. Thirdly, to

defend the buds of those parts during the time of their forming, so that they be not defaced or injured, either by coming into contact with the walls of the ovum, or by suffering a pressure from them and the surrounding uterus, &c. which accidents, unless the embryo did swim in such a fluid, could not be avoided. Fourthly, as a fetus to cherish and forward the growth of the embryo. Fifthly, to lubricate the skin, and to defend the fœtus from pressure, when even the formation is compleated. And, sixthly, part of it passing by the mouth into the stomach and intestines, will not only lubricate and moisten the surfaces of those parts, but also keep them in a due degree of distention, whereby their formations will be forwarded, and the unnatural cohesions prevented, that otherwise would ensue, without the help of such a medium to keep the sides of those hollow viscera open.

That it passes into those parts seemsevident, seeing Aldes, Swammerdam, and Dr. Flemyng have observed (*philosoph. transf. vol. 49, part I. for the year 1755, page 254.*) that in several calves, which were opened before the time of maturity or natural birth, there were found some of their own hairs mixed with the meconium in the intestines.

Whether this fluid answers any other purposes than these, I really know not. I believe that the urine of the fœtus doth not mix with it, or in any respect affect, it for the following reason.

On the 19th of February, 1766, Dr. Hunter shew'd me a child, whose bladder, two months before the time of maturity, contained above three pints of urine, and yet the urethra was naturally open.

Vessels.

There are some vessels which are pervious in the fœtus, but not so in the adult state, viz. vena umbilicalis, ductus venosus, foramen ovale, ductus arteriosus, and the two umbilical arteries; all of which shall be briefly described as follows:

1°. In the spongy substance of the placenta there rises (probably) from its cells an infinite number of small sanguinous vessels, which gradually unite into larger ones as they approach the funis, where near to its root they all join and form a large trunk, called the vena umbilicalis. This vein passes along the funis to the umbilicus of the foetus, from thence to the liver, and there terminates in one side of the vena portarum.

2°. The ductus venosus arises from one side of the vena portarum, nearly opposite to the place where the umbilical vein entered, and from thence passing directly to the great trunk of the vena cava, terminates in one side of it.

3°. Foramen ovale is an immediate passage betwixt the auricles of the heart.

4°. The two umbilical arteries take their origins from the internal iliacs (see chap. V. §. IV.) on each side of the bladder, from whence reflecting back, they pass directly to the navel, and from that along the funis to the placenta, where they divide and sub-divide into many branches, most of which terminate by anastomosing with branches of the umbilical vein.

These being rightly considered, the nutrition of the foetus, and the circulation between it and the mother, will be comprehended as follows.

§. III. When the ovum has passed through the fallopian tube, (at which time it cannot be supposed to be larger than a pea of a small size, considering the capacity of that tube) its exterior surface comes then into contact with some part or other of the inner surface of the uterus, usually on one side near to the fallopian orifice, at which place of apposition the villi of both surfaces adhere soon, or begin to inosculate, and the ovum to imbibe a lymphatic moisture, till the vessels of the placenta are so formed, as to admit the red globules:

Ductus venosus.

Foramen ovale.

Umbilical arteries.

The circulation between the mother and child explained.

bules of blood ; after which time the originating placenta and caduca serve awhile as a filter to separate the lymphatic or pellucid parts from the sanguineous, in order to supply the embryo. Because, even when formation is compleated, there is commonly not the least appearance of red globules to be seen in any part of the foetus.

The fluid refined thus from those, which were derived from the uterus of the mother, is principally conveyed to the originating foetus or embryo by the umbilical vein ; and what is not immediately taken up in the accretion of rudimenting parts, mixes with the liquor amnii, and serves to supply that fluid, &c.

I say principally, for some part of this fluid passes from the spongy chorion (or caduca) immediately through the substance of the true chorion and amnios, seeing the fluidity of the liquor amnii is usually maintained after the foetus is formed, to the time of natural parturition.

Now, as the foetus acquires form and bulk, a greater quantity of nutritive fluids will be required from the mother, and when its formation is compleated, a part of those fluids will consequently be sent back from its heart by the umbilical arteries to the placenta ; and from thence some of this part taken up by the circulating fluids of the mother, in the manner as shall be explained hereafter.

During this early state, it is not improbable that the walls of the ovum should absorb those fluids from the orifices, described in chap. V. §. VIII. seeing no arteries (that I know of) have been observed to terminate upon the inner surface of the uterus before pregnancy : and allowing those terminations to be found even so early as the third month of gestation, (which I believe to be seldom the case) and the nutritive juices to be conveyed by them to the ovum, how will the cohesion at this time support the impetus of the
blood

blood from those arteries ? if it cannot, a separation must ensue, and hence abortion.

But after this time, the ovum enlarges ; the placenta adheres firmer, and grows considerably thicker ; so that its spongy texture is very probably soon adapted to receive into its cells the fluids from the extremities of arterial branches, without losing its adhesion ; and now the lateral orifices of the veins become fit to receive those fluids from the placenta, which are to pass from the fœtus to the mother ; from which increasing state of circulation it is evident how some of the arterial branches, which before were scarcely pervious, grow now capacious enough to permit the red globules of blood to pass through them to the placenta.

As a farther explanation, I shall beg leave to insert what follows, for which I am indebted to my friend Mr. Hunter.

“ The communication between mother and child is by means of the
“ placenta. The placenta is a spongy body, whose spongy surface
“ adhering to the inner surface of the uterus, the arteries of the uterus
“ open, and throw their contents into its cells. In the same manner
“ do the veins of the uterus open from those cells, and the blood
“ from the placenta passes into them, and is carried to the heart of
“ the mother. Here then is a circulation of blood through the cells
“ of the placenta, as in the corpus cavernosum penis. But, besides
“ this, there is another circulation in the placenta by means of ar-
“ teries from the child, which ramify through these cells and corre-
“ sponding veins, that carry the blood back to the fœtus, perhaps with
“ the additional blood that was absorbed from the arterial blood of
“ the mother.”

Whilst the placenta adheres to the uterus, and is thus supplied with fluids from the mother, those fluids are imbibed or taken up from its cells by the ramifications of the umbilical vein, which convey

convey them with the exterior current fluids into the trunk of that vein, and by it they are carried to the vena portarum.

The vena portarum sends a part of them immediately through the liver along with the interior portion of fluids which belongs to that viscus, and the other directly on to the vena cava by means of the ductus venosus.

The vena cava ascendens meeting with the vena cava descendens, and forming but one trunk, they are poured by that, with the rest of the current fluids, into the right auricle of the heart, and from thence a considerable part of them thus mixed passes through the foramen ovale, immediately into the left auricle, from that into the left ventricle, and by that ventricle into the great aorta, without ever passing through the lungs. The remaining portion, which did not pass through the foramen ovale, passes from the right auricle into the right ventricle, and by that into the pulmonary artery, which conveys about one half only of this portion to the lungs. For, as it is thrown by the ventricle into this artery, about one half of it passes through the ductus arteriosus, directly to the great aorta; hence scarcely a third part of the current fluids passes through the lungs of the fœtus.

This portion, which was sent to the lungs, is brought back by the pulmonary vein, and poured into the left auricle of the heart, where, meeting with that portion which passes continually through the foramen ovale; both are then thrown, by that auricle, into the left ventricle, and by that ventricle into the great aorta; which distributes them, as in the adult, to all the other parts of the body, and as follows:

As part of these fluids pass on to the lower extremities, a considerable portion of them is taken off by the umbilical arteries, and carried to the placenta, where some of this portion is conveyed into branches of the umbilical vein; and the other portion passing from
the

the extremities of the remaining branches, into the cells of the placenta; it is then absorbed or taken up by the venal orifices, and mixed with the current fluids of the mother, as above observed.

All the fluids of the foetus, except this portion, are conveyed back to the heart by the veins of the body, as in the adult state, but this portion by the vena umbilicalis, &c. as above described.

From what hath been said, the foetus appears to have three circulations, namely, one by absorption, between the uterus and placenta, one between the placenta and the foetus, by means of vessels, which I have taken the liberty to call the exterior; and one within the foetus, called the interior.

Besides these, it seems probable that about a fourth part of the current fluids of the foetus passes through the placenta; another fourth through the lungs, and the other half through the rest of the body.

The reciprocal increase of the ovum and uterus will appear also, if we consider, that as the former enlarges, a greater quantity of fluids will be derived from the latter; in consequence of which, an accelerated circulation will arise, not only between these, but also between them and the heart of the mother; which increasing, will occasion the vessels of the uterus, some of which before were either impervious or not large enough to convey red globules of blood, to stretch a little from their serpentine courses, and enlarge in their diameters so greatly, as to maintain the uterus in its sameness of thickness, although its capacity is so large in the latter months.

But when the birth ensues, derivation and distention are both taken away at the same time; consequently the vessels contract; and some of them, probably, collapse again; so that by the third week, the magnitude of the uterus is seldom larger than it was at the third month of gestation.

Having now considered what was proposed concerning the nutrition of the foetus, and the circulation between it and the mother, I beg leave to mention a few things which I have met with in authors concerning its formation.

De natura
pueri, sect. iii.
p. 238. 30.

§. IV. Hippocrates says, that the male infant is formed in thirty days, and the female in forty-two.

In sect. IV. page 347—30. speaking of the manner in which the foetus is formed, he says, that the members are all distinguished and increased at the same time; neither is one sooner or later than another. Those, however, which are naturally the largest, are discovered before those which are smaller, though indeed they do not exist one moment before the smaller.

And yet the members of every foetus are not formed always in the same order, or in an equal space of time; but some quicker, and some slower, according as they have allotted to them different degrees of heat and nourishment.

De gen. an.
l. i. c. 2.

Aristotle says, that the male hath the pre-eminence in the original of the motus and generation; the female in the original of the matter. The soul, therefore, proceeds from the male, and the body from the female. For (says he) the substance of the body is the soul.

All the parts are not formed together, but one after another in order; the first in being is that genital particle, by virtue of which (as from their original) all the rest of the parts do arise.

De gen. an.
l. i. c. 4.

The heart is first actually discerned, and that not only discoverable to sense, but according to reason; after the heart, the interior parts are begotten before the exterior, and the superior before the inferior.

Hist. an. vi.
c. 3.

As to time, there begin to appear some indications of generation in hens, after three days (of incubation) and as many nights.

Hist. an. l. 6.
c. 3.

On the fifth day, the body of the pullus is first discovered, the head is conspicuous, and the eyes being large, continue so a long time.

But

But in the lower part of the body, there is no part at first extant correspondent to the upper.

Harvey says, that you shall find nothing at all in a fertile egg, either added or altered, which is not in an addle one: from the male the plastical and generative faculty only proceeds, which renders the egg fertile, but doth constitute no part of it.

Anatomical
exercitations
concerning
the genera-
tion of ani-
mals.

Notwithstanding the above declaration, he doth not assent to the opinion of Aristotle, namely, that the body proceeds from the female, and the soul from the male, as may be seen in his book, page 160.

But concludes, that the male uses neither counsel nor understanding in generation, nor do men generate by any part of their reasonable soul; but by a faculty of their vegetative.

Speaking of the appearances of the egg during the course of incubation, he says, that at the second day, when the egg hath grown warm four and twenty hours under the hen, as the cavity which is in the obtuse angle is much amplified, and fallen lower; so also doth the interior constitution of the egg vary and change. For the yolk, which before stuck fast in the centre of the white, riseth towards the blunt angle, and the middle part of it, where the spot is ingrafted, is elevated, and applies itself to that membrane which encompasses the cavity; so that now the yolk seemeth to be annexed to the cavity of the cicatrice.

From page 82
to 95.

On the second day of incubation, or first of inspection, the foresaid spot (or cicatricula) is dilated to the magnitude of a pea or lentil, and is divided into circles (as if they were drawn by a pair of compasses) which have a very small white point for their center.

When two days are now passed (we use the author's own words) the foresaid circles of the cicatricula are more ample and conspicuous, being the breadth of the ring finger, and sometimes of the middle, wherein the whole macula or spot is divided into two and sometimes into three regions.

If you observe on the fourth day, says he, you will meet with a great metamorphosis and wonderful change, which are more evident for almost every hour all that day long; about which time it beginneth to step from the life of a plant to that of an animal. For now the limbus or hem of the colliquamentum beginneth to blush and purple, being encompassed with a slender bloody line, and in the center almost of it, there leapeth a capering bloody point, which is yet so exceeding small that in its diastole or dilatation it flasheth only like the most obscure and almost indiscernible spark of fire; and presently, upon its systole or contraction, it is too subtile for the eye, and quite disappeareth. So slender are the first rudiments of life in creatures, which the plastical faculty sets on foot by so undiscoverable beginnings. If you are desirous to make this discovery, towards the end of the third day you may, if you be extremely intent, by the assistance of a clear and great light, or by the sun beams, or a perspective, make a shift to discern it. For else this purple streak is so exceeding nice and fine, and the motion of the punctum saliens is so imperceptible, that you will only lose your labour. But, at the beginning of the fourth day it is evident; and at the end thereof, most notoriously visible, that the punctum saliens hath now animal motion (saith Aristotle) in the candid liquor (which I call colliquamentum) and from that (point) two hollow threads like veins full of blood, are carried crooked to the purple line, and the coat encompassing the colliquamentum.

This disquisition (continues he) is of great moment, namely, whether there be blood before pulsation? and, whether the punctus arise from the veins, or the veins from the punctus?

As far as I have been able to observe, the blood seems to be before the pulse; and my reason for believing it is this; one Wednesday in the evening, I put three eggs under a hen, and upon the Saturday following, a little before the same time, I found these eggs cold, as being forsaken by the hen; however, opening one of them, I found the

the rudiments of a chicken, namely, the purple and bloody line in the circle ; but in the center, instead of the punctum saliens, I found the punctum album, which is bloodless. By which I perceived the hen had not long deserted her charge ; whereupon, seizing her by force, I penned her up all night, having first layed the two former remaining eggs, with others that were not there before, into the nest.

Now for the success : the next morning betimes, my two eggs were well recovered, and I found in the center, the punctum micans, which was much less than the punctum album ; out of which (namely, the punctum album) a spark or lightning darting, as it were, from a cloud, appeared in the diastole only. So that, to my apprehension, the punctum rubrum did leap out of the punctum album, at least that punctum is generated in the punctum album.. Nay, I have many times observed, the punctum saliens when (as quite expired) it lay deprived of all motion ; it both acquired fresh motion and pulsation by a new heat and cherishing. Therefore, in order of generation, I conceive that the punctum and blood do first exist, but the pulsation arriveth not till afterward.

About the end of the fourth day and beginning of the fifth, being now elonged, it seemeth to be changed into a small thin bladder, containing blood in it ; which it ejects at every contraction, and recalls again at every diastole.

I am confirmed, by many proofs and experiments, that not only motion is now the companion of the punctum saliens, but also sense itself. For I have often seen, and so have many more who have been present, this punctum, upon contraction by a needle, probe, or the finger itself, nay, upon the admission of a more searching heat, or cold, or any other thing that could molest and disorder, declare many symptoms of its resentment ; for it would fly into many permutations of pulse, beating much stronger and nimbler than before : so
that,

that, no question, this punctum doth (as an animal) live, move and perceive.

On the fifth day, the body, at first, is scarcely discernible, was it not for the eyes and head, so that downwards it is not to be distinguished by any members at all; whether wings, feet, breast-bone, rump, or any viscus; nor, indeed, is it graced with any shape of a body: but as far as I could discover, it is only a little substance next adjacent to the small vein, like the carina or keel of an imaginable small ship wound up together, and like a maggot or worm without any platform of ribs, legs or wings; to which is fastened a little round body, which is the rudiment of the head; which is more discernible than it, and divided into three bubbles (on which side soever you make your inspection) but it is, indeed, divided into four; whereof two are longest and blackish, being the rudiments of the eyes; the third, of the brain; and the fourth, of the cerebellum or after brain.

On the sixth day, the coats of the eyes are distinct, and the legs and wings begin to bud forth. The parenchyma of the heart now groweth to the vesicula pulsans; and a little after, the rudiments of the liver and lungs are discovered, and also the bill. About this time, all the viscera and the guts may be seen: the heart exposes itself first to sight, and the lungs before the liver or the brain. But before all, the eyes are visible, because of their bigness and blackness of colour.

The viscera and guts being now erected, and the fœtus being furnished with motion too; yet the fore-part of the body is still wide open, being deprived of the thorax and abdomen; and the heart itself, the liver and the guts hanging out.

From the seventh to the fourteenth day, all parts are enlarged (as hath been said) and more visible. The heart, and all the other entrails, are now concealed in the several venters or bellies of the chicken; and those that before were exposed and naked, cannot now be

be seen, but by opening the breast and lower belly. And by the twenty-first day, the pullus is perfect.

Malpighius supplies us also with an accurate description of this Appen. de ovo incubato. affair, illustrated with curious cuts; from which, for the sake of brevity, I shall only select fig. 4. plate I. fig. 18. plate II. fig. 22. plate III. and figures 31. and 32. plate IV. together with a few of his observations which seem most useful on the present subject; and likewise shew that this great man discovered the rudimental parts of the pullus much earlier than the celebrated Harvey did: as for in- Page 2. stance, in a fruitful egg, not fat upon, he observed the upper part of the carina of the chick. In an egg, after the month of July, that had been fat upon by an Indian hen six hours, above three-fourths of the carina were visible.

After twelve hours incubation, the cicatrix increased to the size Plate IV. fig. 1. A; in the center of which, the colliquamentum B, was observed with the carina, which delineated by white zones, marked out a little round head; and beyond the middle, first exhibited the orbicular vesicles of the vertebræ C, standing out here and there: yet this structure was most frequently covered by the little bag D; this was succeeded by a white circle like E, which, on the outside, was encompassed by a copious rivulet of the colliquamentum F; next to this was extended the umbilical area G, which was washed by a broad rivulet H. To these were sometimes added more small circles I, carried round in the same manner.

After thirty hours, the circles of the cicatrix were observed to be multiplied, loosened and broken. The umbilical area A, was Fig. 2. covered with small varicous vessels B, which were encompassed with elated solid portions of a palish substance: the colour of the vessels was first yelky, and afterwards rusty. In the same area the vesicle C was contained. The young, living in the colliquamentum, obtained such a configuration. In the head, where there were observed dou-
ble

ble appendices, the eyes D appeared ; united zones from various elevated areas, encompassed five vesicles of the brain E, and the spinal marrow F, drawn out from thence. In the extremity of the angle, the dilated area G afforded a place for the laxated marrow, and the little bags of the vertebræ stood out.

Now the heart H was certainly discovered ; and I have at present by me, says he, dried cicatriculas in glasses, in which it stands out manifest. As yet I could not determine, by repeated observations, and the help of my senses, which was prior, the heart or the blood.

But this is certain, that before incubation I observed the stamina of the carina ; afterwards, during incubation, there manifestly appeared the vertebræ, the rudiments of the brain and spinal marrow, with the wings and a fleshy substance, with the heart, vessels, and contained blood : but rivulets appearing in the umbilical area, it is probable that the heart hung to the carina long before the thirtieth hour. I discovered the structure of the heart. Some considerable time intervenes before the ichor passes through the heart and vessels ; being first of a yellow colour, then brownish, and lastly reddening with blood ; from whence I form this conjecture, which I hinted before, that the juice or fluid, vessels and heart, very possibly pre-exist, and are sensibly manifested, as we observe the eggs of trees.

Fig. 3.

After forty hours, the little shoots of veins, being more visible in the cicatrix, were drawn from the outward fringe A, into the heart of the productions B, from which the umbilical vessels, forming the angle C, drew out the reticular branches, not as yet distinguished into larger stocks.

The carina swam in the colliquamentum, and about it the small bag D ; at a little distance, the future amnion emerged, and the remaining larger part E was the chorion ; in such a manner was the carina of the chick.

In the head the usual vessels of the brain swelled; the first of which, representing glass, seemed to swim in the rest: the usual zone, being made narrower, encompassed the brain and spinal marrow. Here and there the eyes F were placed. The heart G beat turgid, in that way and order as we have and shall more fully describe.

After three days, the cicatrix varied a little from the horizontal situation, and its natural size did not exceed A. The young lay in Fig. 4. its cavity, so that the tract of the spine B appeared drawn from the cerebellum C; the vertebrae D, with the zones E, standing here and there. The crested vesicle of the brain F swam before the rest of the humour, transparent and turgid; and the rest G were manifest. The circles of the eyes as yet were open; the wings I were extended; the Fig. 5. rudiments of the legs K and the rump appeared. The heart was more increased, from whence the blood received from the auricle L, was drove from the vein M, through the duct N, into the right ventricle of the heart, and from thence through O into the left P; then into the arteries Q, and from thence into the trunk R.

After the fourth day, the eyes appeared with a blackish circle, and the humours contained in them. The heart also stood forth from the gaping breast.

After the fifth day his account agrees nearly with that of Harvey's; for after the sixth day the beak appeared, the brain was inclosed by the skull; the feathers broke forth after the twelfth; the cavities of the trunk were closed after the fourteenth; and by the twentieth the formation was usually perfected.

There are more authors who have wrote on this subject, but as the above two have explained it so fully, and their testimonies are of great weight, we shall proceed next to some observations on the formation of viviparous animals, which have been made by the very eminent

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Regn.

De mulierum
organis, page
396 ad 407.

Regn. de Graaf. This writer having inspected rabbits at half an hour after coition, at six hours; at one, two, three, four, six, and even at the seventh day after coition; during which time, he carefully viewed the ova before they left the ovaria; while they sojourned in the tubæ fallopianæ; when they arrived in the uterus (which happened in some at the third day) observes, that their contents, all this time, appeared to be only a limpid fluid. At the eighth day, it appears, by his sixth figure, plate xvi. that a small white cloud was seen in the center of the fluid contents of the ovum. On the ninth, this little cloud A manifestly appeared in the center of the fluid. In another, on the tenth day, he saw in the center of the fluid the rude mucilaginous lineaments of an embryo B, which resembled a small worm; and at this time he also discovered the placenta.

Plate IV.
Fig. 6.

Fig. 7.

Fig. 8.

On the twelfth day, he observed the head and members; and in the region of the breast, two bloody points. The outside of the embryo appeared white, but the mucilaginous substance that rose in the abdomen, from this time, tended to redness.

In the fourteenth day, the configuration was so far advanced as to appear as follows: the head was pellucid, the eyes were prominent, the mouth gaped, and the ears were distinguished; the carina was stretched out in length, the trunk began to form, and to its tender sides there run sanguineous vessels, which dividing into branches, extended to the back and limbs.

In the region of the breast, the puncta sanguinea, being larger, now shewed themselves to be the first rudiments of the ventricles of the heart; and towards the sides of them there appeared white points in place of the lungs, which probably were the first rudiments of those organs.

In the open abdomen, there first appeared the liver, changing a little red, and then some white corpuscles, to which, in likeness of contorted threads, a mucilaginous matter was connected, and the first rudiments

rudiments of the stomach and intestines. By the twenty-ninth day the formation was compleated, and the foetus ready for the birth.

§. V. Having now given the observations of others, as proposed, I shall next offer a few histories which I wrote from some ova femina, as they occurred to me in practice ; some of which are represented by figures, as follows:

A woman who had an ill habit of body, but had been regular as to History I. the catamenia for several months, excepting at the last period, when they were rather less in quantity than usual, was seized, a little before the next expected period, with a hæmorrhagia ab utero; and in a few days miscarried.

The substance expelled was as follows :

It was about the bigness of a hen's egg ; and weighed two ounces and a half Troy ; it was covered with lamellæ of congealed blood, which, by compressure of the uterus, were become firm ; and they were of a white colour. These lamellæ being taken away, and a longitudinal incision made into its substance about three-quarters of an inch deep, it appeared only to be congealed blood, both in texture and colour ; but the incision being continued farther, there appeared an oblong cavity near to the opposite side, which was encompassed by a fine blue membrane : near one half of this cavity was occupied by an ovum, the membranes of which were pretty strong, of a blue colour, and the outer one adhered firmly to the inner surface of the cavity.

There was a small quantity of fluid in that part of the cavity which was not filled by the ovum ; and in the ovum itself there was a small quantity of limpid fluid, and an oval body about the size of a canary seed. At a small distance from this little round body, there arose, from the inner surface of this inner ovum, a funis umbilicalis, at the end of which there appeared some rudiments of a foetus.

The covering of this inner ovum, when put into water, appeared to consist of two distinct membranes.

History II.

A slender and sickly woman had the catamenia copiously at the usual periods, but they disappeared on the seventeenth of June, 1759; in the middle of September following, after a sudden surprise, a flooding ensued, and in three days an ovum was expelled, which weighed 3 iſs. 5 iſs. and appeared as follows :

The placenta was at the smallest end, and covered about one-fifth part of the chorion ; the rest of the chorion was covered with a smooth membranous substance ; and immediately under that, there was a layer of congealed lymph. The chorion and amnion being divided by a longitudinal incision, and the liquor amnii discharged, an embryo about the size of a large barley corn appeared, lying in that part of the cavity which was opposite to the placenta, and attached to the inner surface of the ovum by a funis of about three-fourths of an inch in length. The head was wanting, which, as I imagine, had happened by the motion in carrying it three miles.

The back part of the trunk was covered with the integuments, which appeared very white and smooth ; the legs and arms had begun to shoot out from the trunk, and appeared like little round prominences ; but the fingers and toes were not to be seen by the help of the best glasses, with which I was assisted by my learned friend, Dr. Demainbray, who viewed it also with the greatest attention ; and the anterior side of the trunk was not yet closed. In the superior and left side of the cavity of the trunk, there was a little smooth curved body, which appeared very like the rudiments of the heart ; but from one end of it there ran a vessel directly to the funis umbilicalis, for which I cannot as yet account : a little to the right, and rather behind this little body, there appeared the rudiments of the liver, from which a vessel also passed to the funis. The place of the lungs was partly occupied by a white fibrous substance, which probably had been defaced by the carriage ;

Plate V.

Fig. 1.

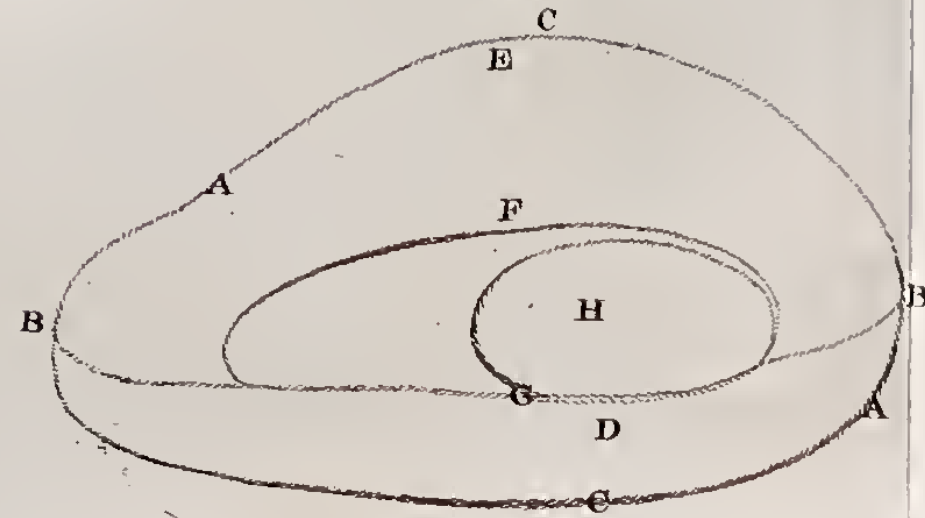


Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.



Fig. 7.



Fig. 8.

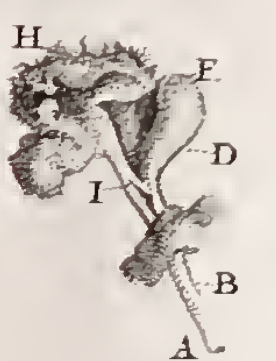


Fig. 9.

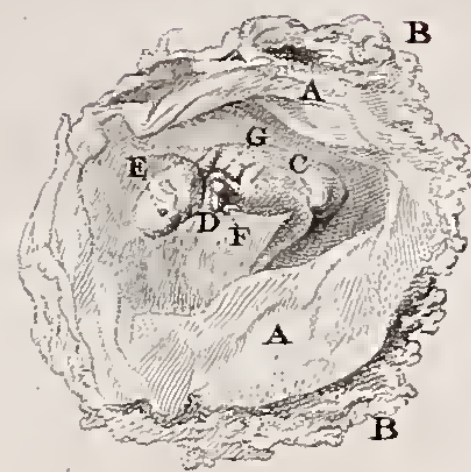


Fig. 10.



Fig. 12.



Fig. 13.



Fig. 11.



Fig. 15.

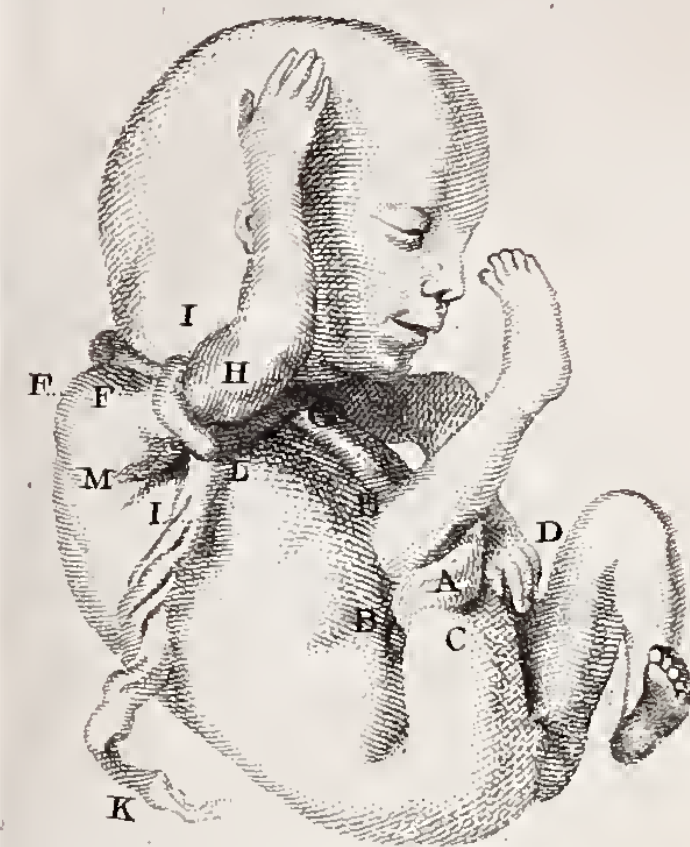


Fig. 14.



carriage : immediately below the heart and liver, the intestines, &c. appeared in a triangular bundle, but not as yet so perfect as to be distinguished from each other. The funis was very large in proportion to the embryo, especially towards the placenta ; but towards the embryo, the umbilical vessels were uncovered.

I remember well to have seen an embryo about the age of this ; the trunk of whose body was entirely open before ; although the external parts were so well formed, that by the naked eye I could easily see the eyes, nose, mouth, and four limbs.

Mrs. Cummins, in Brentford, being seized with a hæmorrhage History III. from the uterus, on the twelfth of December 1759, sent for me on the fourteenth, and informed me that she had had the misfortune to miscarry often about the second or third month of pregnancy ; that since the preceding August, the catamenia had returned every three weeks very copiously, excepting the last time : and that two days before, being the time when she expected them to return again, she was then seized as before mentioned, attended with pains, which becoming strong, several clots of coagulated blood were expelled, and not long afterwards succeeded by the dismissal of an ovum which weighed two ounces and a half Troy.

The form and magnitude of this ovum corresponded with A ; the Plate V. length B was three inches, and the breadth C two inches. Fig. 1. Excepting the flat side D, it was covered with congealed blood, the texture of which was become fibrous, and of a whitish colour on the outside. This bloody lamella being removed, it seemed then to be all covered (except the smallest end) with a smoothish membrane : but having made an incision longitudinally into its substance, from E to F, it proved to be only condensed blood. From F to G there was an oblong cavity encompassed with a fine blue membrane, which contained a small quantity of limpid fluid.

Fig. 2.

In one end of this cavity there was an ovum H, formed by two pretty strong membranes A; this figure represents the ovum when opened by the incision, and the two sides spread out.

The interior ovum B, occupied near one-half of the cavity C. On the inside at D, there appeared the little white body attached firmly to the membranes; and at the distance of an inch from it, there arose from the inner surface of the ovum a perfect funis umbilicalis E, which was about three-fourths of an inch in length, and terminated with whitish fimbriæ, or rather fibrous loops F.

I imagined these fimbriæ to be the originations of the embryo, because the liquor amnii was very pellucid, and there was not the least appearance of any part of the fœtus to be seen in it: nor had there been any motion used (as far as I know) which could separate the parts of the fœtus, and blend them so minutely with the fluid as not to be seen.

The chorion of this ovum, seemed to adhere firmly to (or to be blended with) that membrane which surrounded the cavity C, that is, on the side G to which it lay contiguous.

This membrane, which surrounded the cavity C, was probably the *membrana caduca Hunterana*, although I did not understand it; but imagined it to be some misformation occasioned by the layers of blood.

History IV.

A patient of a healthy habit of body, having the catamenia during the second week of January 1763, they then ceased; and in fourteen days afterwards, she had sickness at her stomach, especially in the morning and evening, which continued till the middle of March.

In the first week of April, having pushed a drawer with a good deal of force, she soon afterwards felt a pain in the left side of the hypogastrick region: in three days a flooding came on, which continued in a larger quantity than the menses, for three days; at the
end

end of which, an ovum was expelled, which being examined, proved as follows :

The secundines weighed five drachms ; liquor amnii one ounce ; and the embryo three grains, Troy weight.

All the outer surface of the chorion, except the smallest end, and a little space near it, on the opposite side to the origin of the funis, was covered with a fleshy substance ; which, at the root of the funis, was two-eighths of an inch thick ; and from thence it became gradually thinner to that part where the membranes were bare. This fleshy substance or first rudiments of the placenta, was, near to the root of the funis, of a reddish colour ; and from thence to the edges it became whitish, resembling fat ; its texture also greatly resembled that of fat.

The ovum being turned inside out, the funis appeared to have originated in one side of the largest end, and to have run about half an inch between the amnion and chorion, towards the small end ; before it left the inner surface of the amnion to become loose in the cavity of the ovum. That part of it which was loose, measured full half an inch in length, and terminated in fibres, amongst which there appeared four larger than the rest ; which, as I apprehended, were part of the umbilical vessels that had been torn from the embryo, but I could not observe any thing like the rudiments of the bladder adhering to them.

From the funis, as it left the inner surface of the amnion, there passed along between the chorion and amnion, for about three-fourths of an inch, a very small white vessel, which entered into one end of the little white body, such as I have described before. This little body was situated between the membranes, had a coat proper to itself, formed by a strong white membrane ; and its inner substance was white, and greatly resembled the medullary substance of the brain.

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The liquor amnii was limpid; and would not coagulate by heat.

The formation of the embryo was not completed, and without help of glasses appeared thus: the head was larger than all the rest; the face was not formed, there being in its place a fibrous shag; but at its upper part, the rudiments of the eyes appeared: the superior, posterior, and lateral sides of the head were covered with the integuments, which appeared like a white and very smooth membrane, whose edges terminated loose and fibrous all around the margin of the face: the vertex was conical; the occiput was very large in proportion to the rest of the head; the neck was short, a little sulcus on its anterior side distinguished it from the head; and its vertebræ appeared larger than any of the spine.

The vertebræ of the spine were so manifest, that I easily told twenty eight, and sometimes thirty of the thirty-two; but as these of the coccyx were extremely small, I could not distinguish the articulations of the two last: those of the os sacrum were as regular and distinct as any other of the spine.

Hence, reckoning seven for the neck, twelve for the back, five for the loins, five for the sacrum, and three for the coccyx, although I could not distinguish the latter from one another, yet it is highly probable they were formed. The whole length of the carina, namely, from the vertex of the head to the apex of the coccyx, was an inch.

The costæ were manifest, but were not as yet joined before by a sternum; therefore, hanging loose from each side of the spine like small threads, neither of the cavities of the trunk were formed. There was not the least appearance of limbs; there was a dark speck on each side of the spine, at the articulation of the inferior vertebra of the neck, and first of the back, from whence it is probable the arms were to shoot; and to each side of the superior vertebra of the sacrum,

a flattish body with obtuse angles was attached by a fine membranous substance. These flat angular bodies were manifestly the ossa innominata; but were not, as yet, joined by a symphysis at the pubes, to form the pelvis.

The whole anterior surface of the carina was covered with a fine fibrous shag, such as covered the space of the face; and its posterior side was covered with the same smooth membrane which covered the posterior side of the head; and its edges projected loosely from the sides of the spine, in the same manner as it did from the margin of the face. This membrane was manifestly the rudiments of the integuments, and very probably the originating muscular parts of the trunk also.

This embryo had happened to be separated from the funis while it was in the ovum: for having perforated the membranes with the points of scissors, to discharge the amnion liquor, the embryo came with it; and although I took it out of the liquor, with all the care I could, and put it immediately into water, yet, by removing it, the cavities of the trunk not being closed, the viscera proved to be so slenderly attached to the spine, that they separated from it.

Although the viscera did not seem to be so perfectly formed as the carina; yet, the heart and its auricles were very manifest: but I could not discover any lineaments of the pericardium. There was a membranous substance which ran across just above the liver and spleen, and below the heart, which I took to be the diaphragm; and below it there appeared several white fibres or vessels, the extremities of which, seemed to have joined to the extremities of the funis.

The liver and spleen were very manifest; the liver was the largest viscus, the spleen next, and the heart next to that. The rudiments of the mesocolon and mesentery, were easily distinguished; that part of the mesocolon which envelops the small intestines, appeared very transparent, yet none of the intestines could be distinguished, except

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the rectum, which hanging down, protruded behind the mesocolon, and was very evident. I could not distinguish the pancreas, bladder, or any other part of the viscera; there was, indeed, a fibrous substance which rose from the superior and posterior parts of the diaphragm and heart, which I took to be the rudiments of the lungs.

The whole embryo was of a gelatinous consistence and white colour, without the least appearance of any red globules of blood. The head and spine resembled the medular substance of the brain of an adult, both in colour and consistence: but the viscera appeared more vascular.

History V.

A patient, who had enjoyed a regular state of health for several months; the first week of August 1763, being her expected period, she was then as usual. The first week of September, being her next period, the flux did not return, upon which she then had sickness at stomach, attended with other symptoms of conception.

On the thirtieth of October, being greatly afflicted and surprized by the sudden death of an only son, she was seized with a slight flooding, attended with some pain; which continued to the third of November, (N. B. This makes about ten weeks from the time in which she may be supposed to have conceived) at which time an ovum was expelled, whose form and appearance were as follows:

The length was three inches and a half; the breadth, at the largest end, two inches; and at the smallest end, one inch.

On the largest part, for two inches in length, the chorion had no shagg, or fibrous covering; but on the smallest end, it was covered an inch and a half in length by the placenta, which in its substance was near two-eighths of an inch thick.

Presently after the expulsion of this ovum, she expelled another substance, the outer part of which was fibrous and fleshy; and the inner part made up of black congealed blood.

The ovum contained an ounce of liquor amnii; which, although limpid, was tinged a little to a red or bloody colour.

This fluid would not coagulate by heat.

The secundines weighed, of Troy, three drachms and one scruple; and the embryo three grains.

The little white body, as observed before, appeared here between the membranes, at about an inch distance from the root of the funis.

The formation of the foetus was not compleated; the colour was white or pellucid, without any appearance of red globules of blood; and its consistence was gelatinous, and even so loose in its texture, that by the motion of the chariot on a smooth road, in two miles carriage, the spine was divided at the last vertebra of the neck; and the viscera also being separated from the carina or spine, hung at the extremity of the funis umbilicalis.

The carina being replaced, appeared as here represented by the most ingenious Mr. Kirby. The anterior side of the head A was flat, and covered with a pellucid fibrous shag, without having any of the lineaments of the face, as they are when formed.

The cavities of the thorax and abdomen were not formed.

At that part B, where the spine had been divided by the carriage, there arose a production C from each side, which seemed to be the first rudiments of the arms. And at this place, where the spine had been divided, the viscera, as I apprehend, had also been separated from the carina.

The seven vertebræ of the neck D *, twelve of the back E, five of the loins F, and five of the sacrum G were manifest: but the three of the coccyx H, were either so close together, or so much obliterated by moving, that we were not able to distinguish them. Eleven ribs

* Fig. 5. is the same embryo magnified by a glass.

I, on each side, were manifest; and spread out from the sides of the spine like the ribs of a flat fish. The ossa innominata were not to be seen adhering to the spine; there were, indeed, two small and flattened bodies, which were separated from the carina; but whether they were those, or some of the viscera, I could not be certain; nevertheless, I am inclined to believe, they were the rudiments of the ossa innominata.

Fig. 6.

The posterior side K was covered with the integuments, which at the margin of the face and extremities of the ribs, terminated in a fringe of very small fibres. The occiput L appeared prominent and very manifest; and on each side of the head there was a black speck or point M, which seemed to be the lineaments of the eyes; and at the upper part of all, in the center, there were two dark specks close together; but whether these were the first lineaments of the nostrils, or not, I shall not venture to determine.

Under the rudiments of the os frontis, there appeared a cavity or hollowness, but all the rest of the head was full of the medullary substance, and was very firm in its texture.

Fig. 7.

From the extremity of the funis umbilicalis A proceeded a vessel B, which at a little more than the eighth part of an inch, terminated in a little smooth curved body C, which appeared to be the first rudiments of the heart. The convex side D, of this little body, pointed to the left side; and below its middle there was an apex or prominent part, which pointed obliquely downwards to the left side.

Fig. 8.

The upper end F*, contracted into a vessel, which was soon hid by a group of white fibres, to the right side of which, adhered an irregular body G, considerably larger than the heart; which, by a fissure near to the middle, being divided into two lobes, appeared to be

* This is the same portion of the viscera magnified by a glass, and a little altered in its position.

the liver: and from the upper side of all these, there proceeded many fibrous shoots H, which seemed to be the first rudiments of the lungs.

From the concave side of the heart, near the lower end, obliquely backwards, there arose a small vessel I, which passing obliquely backwards, and to the right side quickly joined, or terminated in the side of another vessel K, which ran from between the liver and upper end of the heart, to the extremity of the funis umbilicalis A. This last vessel was enveloped in a membranous substance, and accompanied by many small white fibres.

Whether this was the great aorta or not, I am not able as yet to say. However, that vessel B, which ran (as already described) from the funis to the heart, appeared to me to be the umbilical vein.

This vein was much larger than the rest, the necessity of which is very evident, seeing its office must be to convey nutrition to the embryo; and maintain the same till formation be nearly, if not entirely finished; and thus for some time before that a circulation from the embryo to the placenta becomes necessary.

A middle aged woman, who had often miscarried about the sixth History VI. week after conception, expelled an ovum on the eighteenth of June 1765, whose appearances were as follows:

The membranes A were very transparent, and from the surface of Plate V. the external one, there rose a great many white fibres B. fig. 9. The membranes being opened and folded back, the embryo C appeared thus; it was of a white flesh colour, gelatinous consistence; and was covered with the cutis, which appeared thick and extremely smooth.

The anterior part of the neck D seemed to be divided, or lacerated from the trunk; whether naturally so, or accidentally by compression in time of the expulsion, I cannot say; but am inclined to think it happened by the latter. The eyes E appeared like small black rings.

rings. The upper and hind part of the head was covered with the integuments: but the face was not yet formed.

The thorax F was open, and the heart G projected forwards with two protuberances at its basis, which seemed to be the auricles. There was no appearance of lungs. The limbs had begun to shoot; but were not so far advanced as to permit us to distinguish the cubits, legs, fingers or toes, even by the help of glasses. The funis I was very transparent, and very bulky in proportion to the size of the embryo. There was no appearance at all of any red globules of blood.

Fig. 10.

Figure 10. represents the anterior side of the embryo, A the cerebrum at the upper part of the head; B the space for the face; C the heart; D the originations of the limbs; E the eyes, and F the funis.

Fig. 11.

The abdomen being opened by the point of a lancet, whilst the embryo swam in water, there appeared a large mass, or fibrous bundle A, on the right side of the cavity; directly under which, and a little towards the left side, there was a long curved body B, which seemed, at first view, to be the stomach and a part of the intestinal tube. Immediately behind B, there ran, contiguous to the spine, a large vessel from the umbilicus to the heart.

Figure 12. delineates this vessel, and what I supposed was the stomach, magnified by glasses.

A the stomach, and B the vessel. But by a second examination, I am inclined to believe, that what I imagined was the stomach is the umbilical vein.

The texture of the heart and those vessels were very firm or compact; but that of the liver mouldered easily into roundish or glandular fragments.

A patient

A patient, about the age of forty, being much fatigued with company on the eighth of July 1764, was seized that evening with a fluxus ab utero, but in so moderate a degree, as to resemble the menstrua, which had not appeared for fifteen weeks before. History VII.

This flux continued sometimes less than others, till the sixteenth, and then an ovum was expelled, whose secundines weighed two ounces and two drachms, Troy; liquor amnii one ounce; and embryo four grains.

The greatest part of the ovum was externally enveloped with a whitish spongy membrane, under which lay the placenta, consisting of a red and fleshy substance, interwoven with many white fibres or vessels, which connected it very firmly to the outside of the chorion. The chorion was of a blue colour, thick and very firm in its texture. On the inner surface of the chorion lay the amnios, which appeared also of a blue colour, but thinner and more transparent than the chorion, and having been macerated three days in water, separated from it, and appeared reflected or folded.

I searched carefully for the little white body which I had observed in others, but could not find it in this.

The funis umbilicalis began at the small origin H, near the largest end of the ovum, from whence to the embryo I it became gradually larger; and in length was about three-fourths of an inch. The umbilical vessels lay so contiguous to each other, as not to be distinguished, but appeared like a white chord, without any red globules of blood. Plate V.
fig. 13.

The embryo I was very small, in consideration of its age, and its formation did not appear to be entirely finished. It lay curved, and as here represented by Mr. Kirby. The head A was very large in proportion to the rest; the eyes B appeared like two little black specks, with a whitish point in the middle of each: the ears did not appear, nor could we distinguish the nose; but the fissure C appeared

C appeared to be the mouth : the thorax and abdomen were entirely closed. The arms D, and lower limbs E, had begun to shoot ; their extremities appeared flattened, and on the outside of these flattened extremities there appeared the lineaments F of the fingers and toes, the former of which were much more manifest than the latter : at the lower and posterior part of the trunk, there appeared a prominent point G, which seemed to be the apex of the coccyx ; and in the lower anterior part between the limbs, there appeared another promi- nency with a fulcus in its middle, which distinguished the embryo to be a female. These appearances were all manifest to the naked eye ; and by the help of a microscope, we could only further discover the lineaments of the thumbs ; and on the superior and posterior parts of the head, an oval vesicle or part which appeared whiter than the rest, the posterior of these vesicles was much the largest. There was not the least appearance of any red globules of blood in any part of the embryo.

History VIII. A slender and sickly woman who had missed the catamenia twice, was seized with an hæmorrhagia ab utero ; and in four days expelled an ovum, whose appearance proved as follows :

The weight, of Troy, was an ounce and three drachms ; the length two inches ; breadth, at the broadest end, one inch and a half ; at the smallest end one inch, and the thickness one inch. The chorion was ruptured longitudinally ; and, as I suppose, had slipped off to the extremity of the largest end, as the ovum passed through the os uteri : but when laid back upon the amnion, its fleshy fibrous shagg which had lain next to the inner surface of the uterus, was very manifest. The inner surfaces of both chorion and amnios were very smooth ; and being opened longitudinally, instead of liquor amnii and fœtus, I found a conical nucleus or substance, which filled up the whole cavity. This nucleus was covered with a smooth membrane, which seemed to be a reflection of the amnii from one side of the cavity, and

its

its substance was made up only of congealed blood, which by compression of the uterus had acquired firmness. This was what is commonly called a false conception ; but was really a false formation.

A young lady, who had miscarried once before at the third month, History IX. having again missed the catamenia twice, was seized with a flooding on the third of December 1760, and in four days expelled an ovum, or rather a substance, the weight and appearance of which were as follows :

The weight one ounce, and six drachms and a half ; and the form resembled that of a pear. It was covered externally with a smooth membrane, under which there was a thick stratum of congealed blood ; and being divided by a longitudinal incision, there appeared a cavity in its middle about an inch and a half long, and half an inch broad, surrounded with a fine blue membrane.

Towards the smallest end of the substance, in this cavity, there appeared a transparent membranous ovum about the size of a white currant, which adhered firmly to one side of the cavity. In this pellucid ovum, there appeared a little white pyriform body, about the bigness of a millet seed ; but I could not discover any parts of an embryo, either by the naked eye or help of glasses.

The thickness of the substance, from the cavity to the external surface, especially at the largest end, was full half an inch.

The external membrane or covering, appeared to be only the fizy part of the blood condensed firmly by the compression of the uterus. The blue membrane which encompassed the cavity, seemed to be the chorion : the intermediate substance between this and the external covering at the smallest end, consisted of whitish fibres ; but at the largest end, which had lain contiguous to the fundus uteri, it consisted only of congealed blood. The little pellucid membrane which formed the little ovum, seemed to be the amnion ; and the small white body in it, may reasonably be allowed to be that white

body so often made mention of before, and which I have not only often discovered in the well-formed ovum, but frequently also in those which I have called false formations.

The misformation of this foetus might probably arise from the outer surface of the chorion's being covered with blood, immediately after its arrival in the cavity of the uterus; and this layer of blood attracting more, hence becoming thicker, the rudimenting parts of the embryo could neither have space to form, nor a proper supply of nourishment to maintain their growth.

History X.

In the year 1758, a young healthy woman, who had twice missed the menses, was, in consequence of a surprize, seized with some pains, attended with a copious hæmorrhagia ab utero; and in a few hours an ovum came away, whose appearances were as follows :

The entire ovum resembled a hen's egg both in form and magnitude; and weighed an ounce Troy. The liquor amnii weighed three drachms and two scruples; the foetus one scruple; and the secundines four drachms.

The foetus was a male, and perfectly formed; the eyes, nose, mouth, ears, upper and lower limbs, fingers and toes, and even the privities, were all extremely manifest. The head was nearly as big as all the rest of the body; the cavities of the thorax and abdomen were entirely closed; and its whole substance appeared white and gelatinous.

The outer surface of the chorion was covered with a fleshy fibrous substance, which appeared as if it had adhered to the inner surface of all the cavity of the uterus. This substance was full half an inch thick at the smallest end of the ovum; but at the origin of the funis umbilicalis, which was on one side, near to the largest end, it was only one-eighth part of an inch thick.

A woman

A woman of a thin and hectic habit of body, having missed the catamenia twice, was seized with flooding, and on the second day miscarried.

The ovum was about the size of a small pullets egg; and on its outer surface there were very few fleshy fibres to form the placenta, which probably was the cause of abortion. Having opened the membranes, and discharged the liquor amnii, I found that the foetus was perfectly formed. It was of a white colour, and gelatinous consistence; the bigness of a small bee; the head nearly as large as all the rest of the body; and the thorax and abdomen were entirely closed.

In the year 1758, a young and healthy lady, who had twice missed the catamenia, by over hurrying herself, was soon afterwards seized with a flooding; and in less than twelve hours miscarried. History XI.

The ovum was larger than a hen's egg, and covered almost all over with a thick fleshy substance, on the surface of which there was a rough fibrous shag. It being opened, the foetus appeared perfectly formed, and was of a white colour, gelatinous consistence, and the bigness of a small bee. The fleshy substance or placenta, on the outside of the chorion, was very thick opposite to the root of the funis; hence, without such an accidental separation from the uterus, it is highly probable that she must have gone the full time.

In less than thirty days after this abortion, the same lady was taken again with a slight flooding, and expelled another ovum, whose form and magnitude were as follows: History XII.

The ovum was the bigness of a small pullet's egg, but had very few fleshy fibres on the outer surface of the chorion; hence, not the sufficient substance to absorb the due nourishment from the uterus.

Although the formation of the foetus be usually compleated about the eighth or tenth week, yet several cases have occurred to me Observation.

wherein it was manifestly accomplished sooner; of which, for brevity's sake, I shall only add the next following.

History XIII. A strong healthy woman, who had the catamenia copiously every three weeks or month, during a considerable time after the birth of a child: after having them a whole week, according to these periods, they then disappeared on the twenty-fifth day of February 1760, and she saw no more of them till the seventh of April, when she was seized with a pain in her back; in the evening with a flooding; and at four next morning an ovum was expelled, whose appearances were as follows:

Fig. 14. The foetus A was a male perfectly formed, and remarkably large for the age; for it was two drachms and three grains Troy weight; the liquor amnii two ounces; and the secundines eleven drachms. The placenta was well formed; and the surface of the rest of the chorion was not so much covered with a fleshy substance as those already described.

As the catamenia had been regular as to time and quantity, it is most reasonable to suppose that this woman did not conceive till about a week, or at least, a few days after they disappeared: therefore, this foetus could not be above forty days old. If I had not been very strict in making enquiry into this affair, and seen the foetus, I could not have believed that it could have arrived to such bulk in so short a time. But as for the possibility of its formation being completed in such a time, the preceding case testifies; for we cannot reasonably suppose that the foetus, in that case, was above twenty-three days old.

§. VI. The above histories being all I have been able to collect hitherto concerning the order of formation, and the time of its completion; I shall beg to be indulged a little farther in adding a few, which

which give some hints in respect to the proportions which the placenta, fœtus and liquor amnii bear to one another at different times of pregnancy.

A small sized woman, who had enjoyed a good state of health, History XIV. having the catamenia in the latter week of December 1759 (regularly as to time and quantity) they then disappeared.

On the fourth day of the April following, she was seized with the small-pox; and on the fourteenth of the same month, being recovered from this disease, she without any flooding miscarried. The fœtus was a male, and weighed three ounces and a half of Troy weight; and the secundines three ounces and six drachms. It is very probable that the growth of this ovum was obstructed during the time of the mother's disease; but it appears that the fœtus could not be more than three months and about a week old, as the mother cannot be supposed to have conceived before the beginning of January.

A woman, aged twenty-eight, being four months gone in pregnancy, History XV. miscarried on the thirtieth of July 1760; in the first week of the following September, she was troubled with sickness at stomach, a dislike to food, as was usual to her when she had conceived: on the eleventh of the following December, without any known cause, she was seized with an immediate flux ab utero, which did not continue long; on the thirteenth it came on again, attended by forcing pains; and at two o'clock next morning, by the force of nature, the fœtus and secundines were expelled.

The fœtus was well formed, and weighed five ounces, and the secundines three ounces. At the root of the funis, the placenta was half an inch thick, from thence to the edges it became gradually thinner, and was very broad in proportion to the size of the ovum. Its substance was of a whitish colour and glandular texture, greatly resembling fat. The chorion was very thick, and its outer surface covered with many fleshy fibres. The amnion was very thin and
transparent,

transparent, and separated very easily from the chorion, till it came to the funis.

As this woman had no symptoms of conception till the first week of September, she cannot be supposed to have been entirely four months gone in pregnancy.

History XVI. A woman of a slender habit of body, aged thirty-nine, being five months and a half advanced in pregnancy, without much flooding, miscarried. The foetus was a male, well-formed, and of a healthy aspect. It weighed, of Troy, eleven ounces and six drachms; and the secundines six ounces and six drachms.

History XVII. A healthy woman, aged about thirty-five, having missed the menses seven times, was, by a sudden surprize, seized with labour; and having desired my assistance, I went to her directly, but before I could arrive, she was delivered by the help of pains only. Having desired to see the child, I found that it was dead, and still remained in the membranes along with the liquor amnii.

The ovum, when laid upon a plane, measured seven inches and a half in length; and six in breadth. The placenta was situated near to one end, it was a little oval, being four inches and a half long and four broad.

At the root of the funis it was seven-eighths of an inch thick; and from thence became gradually thinner to the edges.

The chorion separated easily from the amnios, and the amnios easily from the side of the placenta, until it came to the root of the funis, where it firmly adhered.

The chorion was very tender; but the amnios was so strong, that, at three days after birth, it permitted me to turn it over several times without bursting.

The membranes being opened, the head of the foetus lay in that end next to the placenta, with the face towards it; the chin lay upon the breast; the hands towards the groins; the knees towards the abdomen; and the feet towards the nates.

The

The liquor amnii measured only half a pint, was very turbid, and of a brown colour.

The funis was twenty inches in length, and twisted from left to right above twenty times round; and at the navel, by these twists, it was so very small, that it was impossible for the circulation to be maintained between foetus and mother; hence abortion must ensue.

This woman had been much employed in scouring and cleaning of rooms upon her knees; which, by the prone position of body, might probably have occasioned those twistings in the funis.

A small sized woman, who was rather unhealthy, having the catamenia copiously during the first week of November, they then left her; and on the fifteenth of the following August, which made nine solar months and seven days, she was taken with labour, and soon delivered of two children, whose weights, together with those of the secundines, were as follows: HIA. XVIII.

The first was a boy, and weighed, of Troy, seven pounds three ounces; the second was a girl, and weighed five pounds nine ounces; each had a distinct placenta and set of membranes; and although that part of the chorion which lay contiguously adhered firmly; yet, by a little care, they separated perfectly from each other. The boy's secundines weighed one pound six ounces; and the girl's only one pound. The placentæ were both of an oblong figure; the boy's was twelve inches long and eight broad; and, at the root of the funis, one inch and a quarter thick: the girl's eight inches and a half long, and seven broad; and, at the root of the funis, one thick: from thence it appears, that a very large part of the inner surface of the uterus had been covered with the placenta of those children.

§. VII. Now let us review the weights of some of the preceding foetuses, and we shall see that their proportions to those of their secundines and liquor amnii, were nearly as follows:

1

At

History IV. At about the tenth week of formation, not being yet finished, the weight of the embryo was, to that of the liquor amnii, as one to 168; and to that of the secundines, as one to 100.

V. Another of the same age, was to that of the liquor amnii, as one to 168; and to that of the secundines, as one to 106.

X. About the eleventh week, the fœtus now being formed, was to that of the liquor amnii, as one to eleven; and to the secundines, as one to twelve.

XIII. About the fortieth day, this fœtus being so early formed, was to that of the liquor amnii, as one to eight; and to the secundines, as one to five and a half.

XIV. About three months and one week, the proportions were so nearly equal, that the fœtus, to that of the secundines, was as twenty-eight to thirty.

XV. About the fourth month, the child, to the secundines, was as five to three.

XVI. At five months and a half, the child was, to the secundines, as nearly eleven to seven.

XVII. Although I neglected to take the weight of this child and secundines, yet, as it was between the seventh and eighth month, we may reasonably conclude that the child weighed fully five pounds, and the secundines one; therefore, it must be to that of the secundines as five to one; and to that of the liquor amnii as ten to three.

At time of maturity, the child is usually, to the quantity of the liquor amnii, as ten to one; and to that of the secundines, as ten to two.

XVIII. The twins, were to those of the secundines, as six to one.

Thus it appears how greatly the proportions of the liquor amnii and secundines exceed that of the embryo before the time of its formation; when formed, how much the liquor amnii is diminished; how their proportions become nearly equal towards the fourth month; and

and how, after this time, those of the child exceed them greatly ; the liquor amnii, which at first being by far the greatest, now becoming the least, so as by the time of maturity, scarcely to exceed the tenth part of that of the child, and third of that of the secundines.

§. VII. From what has been said in this, and the preceding *Inference.* chapter, we may reasonably deduce the following conclusions, namely :

First, That the foetus does not exist all at once, but some of its parts existing sooner, and some later, in a gradual progress, are formed by an accretion of their respective constituent particles.

Secondly, That the parts which first appear are manifestly the funis, carina, heart, vessels, a lymphatic fluid, and then the blood.

Thirdly, That the heart begins to act, a considerable time before the foetus is completely formed ; for, according to Malpighius, this action appeared at the end of the second day : and to Harvey on the third day ; and at the sixth day, the heart appeared to him to have sensation ; yet, according to the observations of both these great men, the formation of the whole chick was not completed till after the fourteenth day of incubation.

Fourthly, That although it be extremely difficult to obtain an ocular demonstration of the time in which the heart of viviparous animals begins to act, and of the human species entirely impossible ; yet, as these gentlemen did, in oviparous animals, observe that this action was begun in less than a day after the rudiments of the heart appeared, even several days before the heart itself had acquired its natural form ; we, therefore, may reasonably conclude, from analogy, that the originating heart of the rabbit species, discovered by De Graaf, and that of the human species, observed by myself, had acted also, notwithstanding that their formations were not completed.

O

Fifthly,

Fifthly, That so soon as the action of the heart begins, the embryo then becomes an agent in itself; for, considering the structure of the parts, this action cannot arise from the power or force of the mother's heart and arteries; nor can it, in any respect, depend upon them, any farther than that the corporeal parts receive nourishment by means of the placenta's absorbing it from the inner surface of the uterus.

THE END OF THE FIRST PART.

A N E W
SYSTEM OF MIDWIFERY.

P A R T II.

E X O R D I U M.

THE complaints and diseases to which women when pregnant and after child-birth are liable, being chiefly committed (as indeed they ought to be) to the care of the obstetrick practitioners; it may reasonably be expected that something should be said concerning them in a work of this kind : I shall, therefore, though very unequal to the task, venture to class them according to the affinity which they seem to have with each other, and to the order of time in which they appear ; comprehending, in this part, those that happen between conception and the natural time of parturition ; and reserving the remainder, namely, those which happen after delivery, to the fourth and last part of this treatise.

C H A P. I.

OF THE SIGNS OF CONCEPTION, AND DIFFERENT TIMES
OF UTERINE GESTATION.

Signs by the
countenance ;

by the sto-
mach ;

by the cata-
menia.

IN consequence of conception, the woman's countenance appears somewhat pale and dejected ; she has commonly a darkish cast below the orbits of the eyes ; is uneasy and sick at stomach ; sometimes retches, especially in the morning ; rejects aliments, commonly those which used to agree with her ; and instead of them, particularly after the second month, desires such with eagerness, as before she did utterly dislike. Some have the menstrua copiously at the first period, others have a slight shew of them at the first three or four periods ; but most naturally they cease entirely as soon as conception begins : the breasts become soon tumified ; and sometimes, especially in the first pregnancies, there are brownish circles (called areola) around the nipples.

She has not so much fever, nor flushing, nor redness in the face, nor oppression on the lungs, as usually attend those who have a suppression only of the catamenia. Some are afflicted with hystericks till the end of the third month ; others with a mictus urinæ, and others have a total suppression of it. There is commonly an uneasiness or fullness in the pelvis, by the stretching and enlargement of the uterus, till towards the end of the fourth month, about which time, all or most of the complaints go off, the countenance revives, the appetite and the strength return.

Some other symptoms have occurred to me, which proving very natural also, I shall beg leave to insert the following history :

A young

A young married lady, a week after her first conception (which happened about fourteen days after the menstrua) felt a pain and pinching in, as she expressed it, about the navel, and was chilly. She had a fullness in her breasts; was sick at the stomach; had a great aversion to several kinds of aliments, which before that time she was fond of: and having missed the catamenia twice, she found herself warmer than usual; but for a month longer she was afflicted with sickness at stomach, and sometimes with retchings. She was also troubled with a frequency of making water, attended at times with pain; and sometimes the extrusion of the fæces gave her pain likewise.

Signs to the
end of the
third month.

At the end of the fourth month, the sickness and retchings went off, the appetite returned, she made water with less pain, and not so often; the breasts continued full, the constitution became still warmer, and the complexion brighter than it had ever been before pregnancy; thus she went on, was delivered at the natural time, and did perfectly well.

§. II. After the fourth month, the fundus uteri rises to, or somewhat above, the brim of the pubes; consequently a little hardness or fullness may be felt there near the symphyses, whilst the rest of the abdomen, at the same time, remains soft and natural, especially when the patient lies horizontally.

Signs by the
rising of the
uterus.

At the fifth month (as Dr. Smellie has rightly observed) the fundus ascends midway to the navel, at the seventh month quite to the navel, at the eighth, half way between that and the scrobiculum cordis, and at the ninth, as high as the place last mentioned; all of which may be known by externally touching the abdomen.

When there are two or more children, the uterus rises quicker than here mentioned; and in the latter months, the abdomen is bigger and harder about the navel, and sometimes towards the pit of the stomach,

Signs to dis-
cover twins.

stomach, than in the former case. For this observation, see Dr. Smellie, vol. iii. page 396.

By the motion of the fœtus.

§. III. The fœtus is sometimes perceived to move at the end of the third month, and commonly before the beginning of the fifth; after which time, being larger and stronger, its movements are more perceptible. There are, nevertheless, some cases where the motions are not felt till near the end of the reckoning. At the first it moves very obscurely, giving only a gentle pat now and then in the region of the pelvis, afterwards flutters a little; then kicks more powerfully as it becomes stronger, and sometimes so suddenly, as to make the mother start with surprise. These motions ascend as the uterus rises, so that if she imagines she feels them at the flanks, navel, or upper part of the abdomen, during the first three or four months, she is deceived; for, in this case, they can only proceed from flatulency or spasmodic contractions, because the uterus is not yet extended to those places.

By the touch in the vagina.

§. IV. About the beginning of the fifth month, the os uteri is a little flattened, and high in the pelvis, and the cervix is a little expanded; which, increasing as pregnancy advances, extends to the circumference of the pelvis by the seventh month; consequently the orifice, becoming thinner and flatter, by the time of maturity, can scarcely be felt; and besides, it is turned more or less backwards towards the os sacrum. After the seventh month, if the point of a finger is held a little time against the anterior part of the cervix, viz. between the orifice and os pubis, the head of the child may often be felt bearing against that part, and then receding quickly back, as it has liberty to swim in the liquor amnii.

Although those signs which have been here enumerated, do commonly attend pregnancy, yet women vary so much, and even the

same person in different pregnancies, as to render it difficult, especially in those who are very corpulent, to distinguish pregnancy from an obstruction of the catamenia, till the end of the sixth or sometimes that of the seventh month. Nay, the experienced Lamotte declares, that there are only two infallible signs, namely, the motion of the child, and the introduction of the finger into the vagina. Hence, the caution recommended by Dr. Smellie, should be strictly attended to, namely, the difficulty of distinguishing between obstruction and pregnancy, in the first months, is so great, that we ought to be cautious in our opinion, and never prescribe such remedies as may endanger the fruit of the womb, but rather endeavour to palliate the case, and always judge on the charitable side, when life or reputation is at stake.

C H A P. II.

OF THE FIRST COMPLAINTS CONSEQUENT UPON
CONCEPTION.

MOST women, especially in their first pregnancies, have a preternatural commotion in the fluids, co-evally with conception, accompanied usually with loathings, reachings and vomitings.

Febris generans.

This febrile commotion may, with some propriety, be called febris generans; as it probably arises from the agency or fermentative power of the semen masculinum. From the same cause, the anorexia may proceed: for it is observable, that the stomach is never much disposed for digestion, whilst nature is endeavouring to bring about any important event; as may be seen from the time she is affected with the miasm of a disease, to that when she has gained the victory.

The retchings and vomitings may arise partly from the same cause, but more especially from a plethora in the vessels of the stomach, occasioned by the retention of the catamenia; and from the sympathy of the nerves; for, when the uterus begins to be expanded, its nerves will be stimulated much, and consequently affect those of the stomach, see Part I. Chap. V. §. VII.

Diagnostics:

§. II. The febris generans manifests itself commonly by a quickness of the pulse (though in some this is scarcely perceptible) a paleness, yellowness, and sometimes bloatedness of countenance. When the menses cease, the anorexia, nausea, and vomitings increase, and often continue very troublesome till the end of the third month, sometimes to that of the fourth; and are not unusually attended with a degree of fever, more obvious than that which accompanied conception. Now, for the

the most part, they cease wholly, probably because the fœtus is so large as to require a quantity of fluids nearly equal to that which is retained by the suppression.

§. III. Some women sustain all, or most of the above complaints, *Prognostics.* without any physical aid, and yet do perfectly well. But when the retching and vomitings are so violent and frequent as to prevent a due retention and digestion of the aliments, the physician's help becomes then necessary; because, that little portion of the chyle, which is permitted to pass through the lacteals, being still crude or ill concocted, and hence defective in the quality as well as quantity, the circulating fluids will soon become vitiated, the whole body will grow pale, and soon be so flaccid, that if not prevented in time, an anasarca will probably succeed to a leucophlegmatia.

§. IV. The method of cure may be deduced from what has been *Cure in ge-* said, and may consist chiefly of the following articles, namely, first, *neral.* a strict regularity in the use of the non-naturals; secondly, bleeding in the arm from six to eight ounces, beginning about a week before the second period, repeating it a few days before the next, and so on for thrice, or even oftner, if the case requires it; thirdly, relieving the stomach, if it is very much affected or loaded with crude humours; fourthly, keeping the intestinal tube lax and easy; and fifthly, if a leucophlegmatia ensues, giving such remedies as will assist digestion, and an expulsion of the redundant serosities, &c.

The purer the air is which she breaths the better; moderate exercise is good, provided care is taken not to strain nor stretch the body violently, by lifting of heavy weights, &c. nor to expose it to concussions, by sudden jolts in a coach upon stones, or by falls, &c.

P

She

She may indulge herself moderately in sleep ; her company ought to be very chearful ; and every thing which is disagreeable, or has any tendency to sudden surprize, must of all things be carefully avoided.

The diet should consist of such things as are easily digested ; nevertheless, if she long for, or desires any particular food, though it may have the appearance of being extremely improper, she must be indulged, because the denial of such things has caused abortion ; and on the contrary, instances have happened where things have been eat and drank by pregnant women, without any hurt or inconvenience, which, at other times, would have been to them extremely disagreeable, if not hurtful.

In particular. Constitutions and circumstances are so various, that, even in so slight an illness as this, it is almost impossible to reduce the method of cure to set rules and forms ; however, for the sake of the student, I shall give a few examples of such means as I have known most effectual and salutary ; as for instance, bleeding, being observed as above directed ; if about the middle of the second or third month, the stomach is much affected with crudities, as often happens, it may be washed with a quart or two of warm water, or camomile tea, either alone, or preceded, if occasion requires it, with pulv. ipecacoan. ab gr. ij. ad iv. vel quinque ; which will sometimes give relief, and even cause less straining than what is usually occasioned by the humours themselves ; this being done, the patient must take a pargoric, and remain quiet for several hours. I must here observe, that emetics have been deemed dangerous in the time of pregnancy ; and that I will not take upon me to say they are not so, when given in full doses : but from experience, I will venture to assert, that in giving such as above directed, or even tart. emetic. ab gr. j. and gr. ij. I have known good, but never any evil produced. Since my first Edition, further experience confirms me more fully in the same practice.

However,

CONSEQUENT UPON CONCEPTION.

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However, to correct the crudities in the stomach, and to allay the febrile heat, such a mixture as the following may be given,

I R Succī limonī uncias duas,
Salis absinthii quantum satis ad plenam saturationem,
Pulveris e chelis cancrorum compositi drachmas
duas,
Aquæ puræ uncias quatuor
— menthæ spirituosæ
Syrupi simplicis,
singulorum unciam unam ;
Misceantur, et fiat mixtura de qua sumat cochlearia tria vel
quatuor, ter in die, vel sæpius si urgeant nausæ et
vomitiones.

To open the body occasionally, and carry off the crudities, the following draught may be given,

II R Magnesiæ albæ drachmam unam,
Pulveris rhei grana duodecim,
Aquæ puræ fescunciam,
Aquæ menthæ spirituosæ,
Syrupi e succo aurantiorum,
singulorum drachmam unam et dimidiam ;
Misceantur, et fiat haustus, primo mane alternis diebus,
vel pro re nata sumendus.

If this draught cannot be retained on the stomach in the morning, it may be given an hour or two before noon, or in the evening ; and should it not be effectual then, or if the patient has an aversion to

OF THE FIRST COMPLAINTS

magnesia, she may take either of the following aperients instead of it,

III R Tartari solubilis drachmas duas,
 Mannæ semunciam,
 solve in aquæ puræ fescunciam, dein colaturæ
 adde
 Aquæ menthæ spirituosæ, drachmas duas;
 Misceantur, et fiat haustus mane sumendus.

IV R Pulveris jalapii grana quindecim,
 — rhei grana quinque,
 Salis nitri grana decem,
 Aquæ menthæ simplicis fescunciam;
 — spirituosæ,
 Syrupi Rosarum solutivi,
 singulorum drachmas duas;
 Misce, fiat haustus mane sumendus.

If an electuary be more agreeable, she may take the following, or a similar one.

V R Electarii lenitivi (vel in loco ejusdem electarii
 e casia) uncias duas,
 Cremoris tartari semunciam,
 Pulveris rhei, drachmam unam
 et dimidiam,
 Syrupi rosarum solutivi quantum sufficit;
 Misceantur, et fiat electarium, de quo capiat quantitatem
 nucis moschatæ alternis noctibus, vel sæpius si alvus non
 satis fuerit soluta.

If

If the viscera are diseased, the above means will probably be insufficient; therefore, in such cases, recourse may be had to the following aperients, or similar ones,

VI R Saponis amygdalini drachmas duas,
Pulveris rhabarbari drachmam unam,
— Curcumæ sesquidrachmam,
Syrupi ex althæa, quantum sufficit;

Misceantur, et fiat massa, unde formentur pilulæ duodecim ex singulis drachmis, quarum capiat quatuor singulis vel alternis noctibus, et mane sequentibus, superbibendo cochlearia tria vel quatuor mixturæ sequentis.

VII R Succī limoni uncias duas, salis absinthii quantum sufficit ad plenam saturationem,
Aquæ alexeteriæ simplicis uncias quatuor,
— Spirituosæ,
Syrupi simplicis singulorum unciam unam;

Misceantur.

VIII. And finally, should a leucophlegmatia ensue, as above mentioned, the body being first deterged with such aperients as those prescribed; the cure may be continued by giving infusions and decoctions prepared of the following ingredients, viz. Cortex peruvianus, aurantiorum, et limonum; fummitates centaurii minoris, radix gentiana, serpentaria virginiana, et seneka, &c. And moreover, sal absinthium, et diureticum, vinum amarum, or tinctura martis in spiritu salis, &c. may be given as occasion requires.

C H A P. III.

OF THE SECOND CLASS OF DISORDERS WHICH
ATTEND PREGNANCY.

Definition. THE second series of complaints arising from the pregnant state, are uneasy sensations or pains in and about the pelvis; sometimes ascending to the hypogastrick region; a frequency of making urine, commonly accompanied with some difficulty, pains and forcing down, and sometimes a total suppression ensues, and continues exceedingly troublesome for several weeks.

Causes. These complaints may arise, first, from the irritation, and stretching of the nerves in the viscera of the pelvis, occasioned by the increasing magnitude of the uterus; secondly, from the distention of that portion of the peritonæum which makes the external covering to the uterus and vesica urinaria, as described in Part I. Chap. II. §. VI. which distention will not only produce pain, but in some respect disturb the natural action of the sphincter vesicæ; and thirdly, from the pressure of the uterus against or upon the neck of the bladder, &c. When to these are added stone or gravel, the complaints become worse, and sometimes dangerous.

Cure. §. II. They usually begin in the third month, and cease about the fifth, without any medicinal assistance. But when the pains are very urgent, and other complaints ensue, especially the suppression of urine (or when there is gravel, &c. in the bladder) attention then must be given to them; and for this end.

The diet must be such as serves best to soften and relax the fibres, as boiled white meats, broths and diluting drinks; and venièction
being

being performed, as directed in the preceding chapter, or as occasion requires it, the following means may be used :

I. R. Pulveris gummi arabici drachmam unam,
 Aquæ rosarum fefquidrachmam, fiat mucilago, cui
 fenfim adde,
 Olei amygdalini dulcis drachmas tres,
 Aquæ rosarum unciam unam,
 — nucis mofchataæ,
 Syrupi fimplicis, fingulorum drachmas duas ;
 Mifceantur*, et fiat haufus, fexta vel octava quaque hora
 fumendus.

A few drops of laud. liquid. fyden. may be added occasionally to the evening draught; and when there is need to open the body, fuch aperients as recommended in Chap. II. §. V. prefcription 3, 4, and 5, may be given, or thefe following :

II. R. Mannæ unciam dimidiam, folve in aquæ puræ
 fefcunciam, dein adde colaturæ
 Olei amygdalini dulcis,
 Tincturæ rhabbarbari vinoſæ fingulorum drachmas
 duas;
 Miſce, fiat haufus quarta quaque hora fumendus, donec alvus
 ſatis fuerit ſoluta.

III. R. Electarii lentivi uncias duas,
 Pulveris jalapii fefquidrachmam,
 Olei amygdalini dulcis unciam unam,
 Syrupi rosarum quantum ſufficit ;
 Miſceantur, et fiat electarium, cujus capiat quantitatem nucis
 mofchataæ nocte maneque vel pro re nata.

* This mixture, in the ſequel, will be called mixtura oleoſa cum gummi.

Enemata

Enemata emollientia may also be given with advantage, as occasion requires: but when a total suppression comes on for eighteen or twenty-four hours (or sooner, if there be a great sense of a distention, or universal uneasiness) immediate recourse must be had to the catheter, which may be passed with ease, as well as decency, in the following manner:

The manner
of passing the
catheter.

§. III. The woman, being towards the right side of the bed, must lie on her back, with her knees elevated and kept apart, then the operator must kneel at her right side, and pass a warm flat basin (with the catheter first dip't in oil, within it) below the bed cloaths, across under her right ham, and place it with his right hand as near the perinæum as possible; this being done he must pass his left hand under the bed cloaths, and down over the pubes, with the fore-finger along the fossa magna, till it arrives at the lower edge of the meatus urinaris, which may be felt a little prominent about half an inch above the os vaginæ, see Part I. Chap. V. §. I. Then he must withdraw the finger about a quarter of an inch, take up the catheter with the right hand, pass its point between the lower edge of the meatus and the point of his left finger, into the urethra, and so on into the cavity of the bladder, in which place it will arrive when two inches or two and a half of it have passed along the urethra, on which the urine will issue forth.

In passing it, the point must be kept pretty close to the symphyfes of the pubes, and the convex side of the curvature towards the vagina. When thus introduced, it may be moved about with such caution as not to occasion pain, by its pressing against the inner surface of the bladder; and if there happens to be a stone, it will thereby be probably felt.

§. IV. If

§. V. If there is a stone, and it happens to rest against the inner orifice of the urethra, so as to occasion a violent irritation on that part, or a suppression of the urine, it may be moved back into the cavity of the bladder by the point of the instrument. This being done, and the urine discharged, the catheter may be withdrawn, the handle being raised gently as it comes along. If the stone happens to be forced into the urethra, and to be arrived so near to the external orifice, that it may be extracted without the danger of laceration, or the bringing on of violent forcing pains; the operation may be performed in manner following:

The patient being placed either on her back with the knees apart, or on her left side, the operator must pass the fore-finger of his left hand (dip first in oil) along the vagina, till its point gets above the stone, which will be easily felt, and thereby kept gently down towards the outer orifice, whilst he passes, with his right hand, a small pair of forceps* (dip also in oil) along the urethra till they arrive at the stone; which then must be laid hold of, and extracted with due caution and deliberation. When it has been forced by the urine and strainings, &c. so near the external orifice as above observed, the operation is seldom attended with danger, or much difficulty: but when it is lodged near the inner orifice, if a small catheter, &c. cannot pass by it into the bladder with ease and safety, to give exit to the urine, until it can be washed or forced farther on, it must then be pushed back into the bladder by the catheter, and the operation deferred till the patient is perfectly recovered from parturition; for violent pains and strainings at this time, might occasion an abortion, and thereby bring on some fatal consequences.

When the urine has been retained twenty-four or thirty hours, it is sometimes near two quarts in quantity, and commonly

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very

When and
how to extract
a stone from
the urethra.

* Plate IX.
fig. 1.

very high coloured. The bladder being once emptied, the patient must endeavour to make water now and then, before it becomes distended again. If she does not succeed, the operation must be repeated, as occasion requires; but never, if nature can help herself in less time than twenty hours, or thereabouts; excepting the symptoms are very urgent.

C H A P. IV.

OF THE THIRD SERIES OF COMPLAINTS ARISING
FROM PREGNANCY.

THE third class of complaints, arising from uterine gestation, are Definitions. cholic pains (called sometimes spurious labour) which very often happen towards the full reckoning, and torment the patient so violently, as to be taken for real labour, both by the patient herself, and those who attend her.

Sundry causes concur in the production and aggravation of those Causes. complaints; as, pains from the stretching of the uterus; the pressure of it on the adjacent parts, especially if they happen to be diseased; the altered position of the abdominal viscera, occasioned by the increase of the uterus; for, as it rises in the cavity, the mesentery and mesocolon recede before it, till, reflecting upon the liver, stomach, and spleen, the intestines are gathered into a bundle, both above and on each side of it, whereby their peristaltick motions become impeded, not only from their inverted position, but by the pressure also they sustain. Hence, the fæces sliding slowly through them, accumulating into indurated lumps, which plug them up, and distend them, collecting also putrid and elastic air in the interstices, which becoming more and more rarified, stretches and irritates them so greatly, as to bring on very violent pains. And lastly, from the tube's being vellicated by bile, or other acrid humours flowing into it, either from the stomach or liver, &c. and perhaps the cause of natural parturition beginning to operate also.

Diagnosics. §. II. These complaints are commonly ushered in as follows; an oppressed pulse; a chilliness; sometimes a sickness at stomach, and vomiting of yellow or green bile; a great uneasiness over the whole abdomen, the chief pain being sometimes confined to one part, but more commonly shifting, as for instance, running across the loins, sometimes to the right ilium; commonly from the right hypochondrium, across the cavity between the stomach and fundus uteri to the left hypochondrium.

During the fit, the patient makes water in small quantities, and very frequently; small and griping stools are voided; but oftener a costive habit of body has preceded, and still continues.

It is very common, especially near the latter end of pregnancy, to find a conatus, or bearing down of the uterus, brought on by these pains, resembling that of real labour: nay, I have met with the os uteri dilated above the breadth of half a crown, and the child's head forcing both it and the neck of the uterus down below the middle of the pelvis with great violence, even so early as two months before the completion of pregnancy; but then I always observed, that the edges of the orifice were thicker and harder than what they usually are at the beginning of labour; and that a few hours being elapsed, the orifice was rather contracted than opened.

Although obstetrick practitioners have greatly the advantage of others in distinguishing this disorder from real labour, by the help of the touch; hence, persons proper to be consulted; nevertheless, when these cholicks happen in a few days, or even weeks before the expected time of child-birth, the task is sometimes so very difficult, that practitioners of considerable experience may be deceived; and therefore, ought not to be precipitate either in their prognostications or method of cure.

However, let the complaints be ever so urgent, the woman having pains, and screaming out as if she was in real labour, if the vagina
begins

begins not to open; if there is no discharge of mucus; if the os uteri remains prominent, thick, or entirely shut, especially if it be now six or eight hours since the attack, and the uneasiness or pains continue without ceasing, it may be taken for granted that true labour is not begun.

§. III. When a healthy state of body has preceded, and the patient Prognostics. has not been subject to violent costiveness, miscarriages, or convulsions, &c. and when they happen at any time before the seventh month, they usually yield very readily to the remedies.

But when they happen after the seventh month, and the patient has been subject to the inconveniencies above-mentioned, they do not give way so easily; therefore, the method of cure must be conducted with more caution, especially the nearer that it is to the time of the full reckoning.

§. IV. Soft and liquid diet must be used; meat or any kind of Cure. solid food being taken but very sparingly, till a day or two after the disorder is removed.

Bleeding in the arm, unless weakness or other circumstances forbid it, may begin the cure with advantage; secondly, the stomach and intestines must be cleared of crude or foul humours; and thirdly, ease obtained by anodynes; after which, the body must be kept lax to prevent a return of the complaints.

If the stomach is greatly oppressed with vitiated humours, which sometimes are of a dark or brownish colour, it may be washed at any time of pregnancy with camomile tea, as this will excite vomiting no longer than whilst it is drank, and frequently not then, till the fauces are tickled with a finger or feather.

When an enema can be complied with, it should be administered; and after it has operated, an anodyne should be given, and quietness
injoined.

OF THE THIRD SERIES OF COMPLAINTS

injoined. But if the enema is refused (as sometimes unfortunately happens) from the obstinacy of the patient ; or if both it and the paregoric have been given, and the pain still continues, recourse must be had to such lenient purgatives as these following :

I R Tincturæ rhabarbaræ vinosæ fescunciam
Syrupi rosarum solutivi drachmas duas ;
Misce, fiat haustus statim sumendus.

Vel,

II R Tartari solubilis sesquidrachmam,
Pulveris rhei grana quindecim,
Aquæ alexiteriæ simplicis fescunciam
spirituosæ,
Syrupi violarum,
Singulorum drachmas duas ;
Misceantur, et fiat haustus statim sumendus, et post
horas duas repetendus.

Vel,

III R Pulveris jalapii scrupulam unam,
—— Zingiberis grana quinque,
Salis nitri grana decem,
Aquæ menthæ piperitidis simplicis
Sescunciam,
—— Spirituosæ,
Syrupi rosarum solutivi,
Singulorum drachmas duas ;
Misce, fiat haustus.

4

Vel,

Vel,

IV R Salis Glauberi drachmas sex,
Mannæ unciam unam
solve in aquæ hordeatæ uncias septem,
deinde colaturæ adde
Tincturæ fennæ unciam unam ;
Misceantur, et fiat apozema de quo capiat
cochlearia tria, vel quatuor, secunda, vel tertia
quaque hora donec alvus semel vel bis respondeat..

If pills be more agreeable to the patient,.

V R Pulveris jalapii scrupulum unum,
Olei Carui guttas duas,
Syrupi ex althæa quantum fatis ;
Fiant pilulæ quinque, quarum capiat unam
omni hora donec alvus fatis solvatur.

As soon as a stool is obtained by any of the above means, the patient must drink freely of weak broth, or rather thick and smooth gruel, by which the intestinal tube will be duly replenished, the acrimonious humours diluted, and the parts which were distended and vellicated, now fomented and cherished. When three or four stools have been obtained, the patient may then take a soft anodyne, and repeat it as occasion requires ; during which time, she must be kept extremely quiet, and free from company. After this, to keep the body open, and to prevent a relapse, such as the following lenients may be given :

VI R

VI R Electarii e casia uncias duas,
Pulveris rhei drachmam unam,
Olei amygdalarum dulcium unciam unam,
Carui guttas decem,
Syrupi rosarum solutivi quantum satis ;
Misceantur, et fiat electarium de quo capiat
quantitatem nucis moschatæ nocte manequæ
adstrictione alvi urgente.

Vel,

VII R Olei amygdalini dulcis,
Mannæ optimæ,
singulorum unciam dimidiam,
solve simul in vitello ovi
quantum sufficit, dein adde
Tincturæ rhabarbari vinosæ
drachmas tres ;
Misceantur, et fiat haustus quarta quaque horæ
sumendus donec alvus satis soluta fuerit.

When these complaints arise from obstructions in the liver, or from any other of the abdominal viscera, such medicine as recommended (Chap. II. §. IV. prescription 6 and 7.) may then be given, especially after the above means have been used.

C H A P. V.

OF THE FOURTH CLASS OF DISORDERS WHICH SOMETIMES
ATTEND PREGNANCY.

IT is not unusual for women, especially towards the latter months, Definition. to be troubled with varices; that is, the veins here and there give way, and enlarge so much as to form tumors. These dilatations may happen in any part of the body, but most frequently in certain parts of its surface; as for instance, in the exterior veins of the legs, thighs, anus (where they are called hæmorrhoides), abdomen, and sometimes breasts.

The causes which produce them; though various, may be reduced Causes. to the following, namely, first, a general laxity of the vascular system; secondly, an obstruction in the abdominal viscera, especially in the liver and mesentery, whereby the free and natural reflux of the blood, from the lower extremities to the heart, is impeded; thirdly, the pressure of the uterus, either upon these viscera, or upon the larger veins, as the iliacs and vena cava ascendens, &c. fourthly, any violent exercise, especially when the woman is obliged to stand much; fifthly, and more particularly, when to any of the above a plethora is added.

§. II. These varices manifest themselves by raising the cutis into Diagnosis. eminencies, which are very soft and yielding; even disappearing by gentle pressure, and rising again as that is taken away. They are usually of an azure or blue colour; and a little above and below them, the veins are commonly knotty, sometimes winding, and generally enlarged beyond their natural sizes.

R

§. III. They.

Prognostics.

§. III. They are commonly not dangerous, especially if the causes which produce them be early removed, and the coats of the vessels consequently relieved before they have sustained so long a distention as to be rendered unable to regain their pristine or natural state. But when they have been of very long standing, the cure is not only difficult, but it sometimes also happens, especially when they are seated in the larger vessels, that they burst and bleed so very copiously as to become dangerous, if proper assistance is not immediately had.

Regimen.

§. IV. The regimen must be suited to the causes; that is, if the disorder depends on a general laxity of the vessels, cool and open air is good, and an astringing, drying, and nourishing diet, with moderate exercise.

But if from obstructions or pressure, &c. the diet must consist of the soft diluent, and aperient kinds; and during the intervals of gentle exercise, the patient must often rest by lying on one side, either upon a bed or couch.

Cure.

§. V. The method of cure also must be suited to the causes, as for instance, when the disorder proceeds from the laxity of the vascular system, then stomachic and corroborative medicines may be used; as for example, cortex peruvianus, aurantiorum, summitates centaurii minoris, elixir vitrioli mynischti, and tinct. mart. in sp. sal. &c. But when from obstructions in the viscera, &c. then those medicines which are aperient and attenuating must be given; as for example, sapo amygdalinus, sapo ex oleo olivarum, tartarum vitriolatum, sal absinthii, sal diureticus; mixtura salina, and manna, &c. As to externals, the same kinds will answer in both cases; for the whole intention here, is to brace and constrict the lax and dilated part of the vein, and the cutis above it; to which end, the following decoction and cataplasim may be used with some advantage.

I R Corticis granatorum,
 querci contusi,
 Singulorum unciam unam,
 coque in aquæ ferrariæ libras tres
 ad fœquilibrium ; dein colaturæ adde
 Aluminis rupei drachmas duas,
 Vini florentini uncias quatuor :
 Misceantur, et fiat fœtus frigide utendus.

Linen compresses may also be wet in this mixture, or fœtus, and bound on the affected part by a roller. These must be applied very smoothly, and renewed twice a day.

II R Aluminis rupei uncias duas,
 Farinæ avenacæ,
 Boli armenæ,
 Singulorum uncias quatuor,
 Vini rubri quantum sufficit ;
 Misceantur, et fiat cataplasma frigide applicandum
 et renovandum, secunda vel tertia quaque die.

Dr. Ball recommends a cataplasim like this for the bleeding piles ; I have not as yet used it for that purpose, but believe it may be useful in such cases ; at least, considering the composition, it bids fair for it. Strengthening plaisters may be used likewise, with compresses and rollers over them.

When a hæmorrhage ensues, it is usually stopped by dry lint, a compress and roller. On the third or fourth day afterwards, digestion comes on ; the ruptured part incarns, cicatrizes, and is usually healed in the common way.

But if the vessel is very large, and the hæmorrhage cannot be stopped in the above manner, or by any astringent applications, the integuments then must be divided to a little distance below the bleeding orifice, the vessel laid bare, and taken up by the needle and ligature; which being done, the wound will digest, and the cure be compleated in the ordinary way.

My friend, Mr. Ranby, says, that he saw once a very large varix, which had been opened by the lancet, the consequence of which was, a great difficulty both in stopping the hæmorrhage, and in healing the aperture; and that after it was healed, the varix became larger than ever. He recommends flannel rollers instead of linen ones.

§. IV. I have known no means that give more relief in the hæmorrhoidal paroxysms than bleeding frequently in small quantities; and as the blood which is taken away is for the most part fizy, coolers, aperients, demulcents, and anodynes are to be given at proper intervals; as for example, sal nitri, mixtura salina, mixtura oleosa cum gummi, spermaceti, syrupus diacodion, and tinctura thebaica, &c. To keep the body laxative, such aperients as recommended in Chap. IV. §. IV. prescription 5, 6, and 7, may be taken. And as to
 *Externals. externals,

III R Olei amygdalini dulcis unciam unam,
 essentialis succini semunciam,
 Tincturæ thebaicæ drachmas duas;
 Misce, fiat embrocatio applicanda bis terve in die.

IV R

Vel,

IV R Unguenti sambucini unciam unam,
 Linimenti saponacei unciam demidiam,
 Tincturæ thebaicæ drachmas duas;
 Misceantur, et fiat linimentum quocum inungantur
 partes affectæ bis terve in die.

And immediately after the application, either of the embrocation or liniment, let the parts affected be covered with a cataplasm of bread, milk and oil.

§. VII. An imposthumation sometimes happens near the anus; a case of which kind I had in 1765, viz. a young married lady, in the seventh week before the time of her reckoning, had an abscess formed, which extended from the middle of one labium to the side of the anus, and a little behind it.

I laid it open by an incision of about three inches in length, running along the side of the perinæum to the side of the anus, whereby a freedom of discharge was perfectly obtained, though the cavity extended much farther. The applications first used were bals. terebinth. ol. virid. ana p. æ. which digestive being made agreeably warm, a soft piece of lint was dipped in it, and laid within the edges of the wound, and over this an emollient cataplasm was immediately applied. These applications were renewed twice a day for near a fortnight, by the expiration of which time, the cavity, which had contained the pus, was contracted almost to the edges of the aperture; the inner surface was deterged; the granulations appeared kindly; and the surrounding hardness was entirely gone. The cataplasm now was the only dressing made use of, and being continued about a week without any other, it was then laid aside, and the wound cicatrized with ceratum epuloticum spread upon lint.

The

The cure was compleated in less than a month, the patient went her full time, was safely delivered, and still enjoys a very good state of health. I must further observe, that during the cure, the body was duly opened by soft aperients, as those above-mentioned.

In 1766, I had another case, about the seventh month of pregnancy, in which one labium was greatly tumified, and a fluctuation of fluid to be felt extending to the perinæum; I made an opening with the lancet; a large quantity of black blood was discharged; the swelling subsided; the patient went her full time, and did very well.

C H A P. VI.

OF THE FIFTH AND LAST CLASS OF COMPLAINTS
THAT SOMETIMES ARISE FROM UTERINE GESTATION.

Tumefactions of the lower limbs happen also to some women after the fourth month. Swellings of the lower extremities.

These may arise from a plethoric habit of body, the reflux of the blood to the heart being impeded by the pressure of the uterus upon the adjacent parts; much labour or exercise; the body being kept erect during that time; a native debility of the fabric itself; obstructions and diseases of the lungs, or abdominal viscera; or a deficiency in secretion of the urine, and expulsion of the fæces, &c. Causes.

§. II. When the disorder is caused by pressure and plethora, the complexion is usually florid, and the body healthy; the spine is usually pretty straight; the angle of the sacrum not projecting much over the pelvis, so that the posterior side of the uterus lies flat against the iliacs, and vena cava ascendens; the legs, at first, grow uneasy and stiff, towards night they swell a little, but by morning recover their pristine state. Diagnosis.

As the uterus enlarges, the swellings of the legs increase; so that in process of time, not being sufficiently assuaged in the morning to relieve the vessels, by the evening they grow still more painful, red and inflamed. Before the end of the reckoning, if no assistance be given, the vessels being continually on the stretch, the lymphatics give way and burst; the lymph extravasates; the redness of the skin grows paler, at last goes off; the swellings increase, ascend; and, when pressed upon, remain pitted.

Part of the extravasated lymph being now absorbed, and taken up by the circulating fluids, contaminates, by degrees, the whole mass; and the blood and other juices, thus blended, having lost their firmness, the solids likewise become feeble and unable to perform their functions.

The complexion now grows pale; the whole habit leucophlegmatic; and, in short, the disorder still ascending, not only the thighs and labia pudendi, but the whole body become swelled: a remarkable instance of which fell under my care in 1763, namely, a young woman, who was naturally very strong and healthy, yet, in the first pregnancy, became so compleatly anasarcaous, that the labour being very lingering, and she, for about twelve hours, not being able to rise from the bed *, the swellings of the legs, thighs, and labia pudendi, &c. indeed lessened; but then, the arms, neck, face, and whole head became swelled to an amazing degree.

When the disorder arises from obstructions and diseases of the viscera, or a general laxity of the frame, the symptoms attending such must have preceded; and besides, the patient now appears pale and sickly; the limbs, at first, are not so red and inflamed as in the former case, but sooner swell, become oedomatous and very pulpy. The reason of so quick a progress, appears from what has been said concerning those swellings which arise from plethora and pressure.

Prognostics. §. III. If the patient is young, and the tumefactions arise from plethora and pressure, they either give place to remedies, or keep so much under as not to be extremely hurtful to the constitution, and after parturition disappear usually without much inconveniency.

But if she is near the meridian of life, and they proceed from obstructions, or a laxity, &c. they often resist the power of medicines so

* It may be necessary to observe, that she had three children at this birth.

much, that by the time she is delivered, the whole fabric is so greatly enfeebled and shattered, that if she survives the lying-in, her health recovers (for the most part) but very slowly and imperfectly.

§. IV. As to those arising from plethora, &c. the diet must be *Cure.* cooling and aperient; but if from a debilitated fabric, it must be more balmy and nourishing: in both cases, brisk air and gentle exercise *Aliments.* are good. At times she must lie on either side, either on a couch or bed; and observe also to garter as loosely as possible.

In the cure, respect must be had likewise to the causes; for if the *Medicaments* swellings arise from either plethora, pressure, obstructions, or diseases in the viscera, and are but just begun, blood may be taken from the arm to six or eight ounces, and repeated according to the strength and occasion; after which, the intestinal tube must be kept free and easy, with such aperients as in Chap. II.

But if they proceed from a laxity or debility of the whole constitution, then corroboratives are proper. As to externals, the skin should be kept very clean, by washing the legs and feet with bran or soap and water, taking care to keep them but a short time in the fots, to rub them quickly dry, and keep them extremely warm, whereby perspiration may be encouraged as much as possible: next morning, while the swellings are down, any strengthening embrocation may be used.

CHAP. VII.

OF THE VENEREAL DISEASE.

AS this disease, when happening in pregnancy, may become destructive to mother and child, if not timely prevented by proper remedies, I shall hope to be excused, in taking some notice of it here. In doing this, I shall not depend so much on my own judgment, as on that of others; who have had more extensive practice in this branch, and who have also wrote fully upon it. Amongst those Writers, I think the Public are particularly obliged to Mr. Benjamin Bell, of Edinburgh; and the celebrated John Hunter, of London; especially to the latter, his work being the result of many curious and very accurate observations, as well as of a long series of successful practice.

In Page 11, treating on the poison which constitutes this disease; He says; “ It is commonly in the form of pus, or united therewith, “ or some such secretion, and produces a similar matter in others, “ which shews that it is most generally, although not necessarily, a “ consequence of inflammation. It produces or excites therefore, in “ most cases an inflammation in the parts contaminated; besides “ which inflammation, the parts so contaminated have a peculiar mode “ of action superadded, different from all other actions attending inflammation; and it is this specific mode of action, which produces “ the specific quality in the matter. It is not necessary that inflammation should be present to keep up this peculiar mode of action, “ because the poison continues to be formed long after all signs of inflammation have ceased. This appears from the following facts; “ Men having only what is called a gleet or healing chancre, give the “ disease

“disease to sound women: and many venereal gonorrhœas happen
“without any visible signs of inflammation.

“In women the inflammation is frequently very slight, and often
“there is not the least sign of it; for they have been known to infect
“men, though they themselves have had no symptoms of inflam-
“mation, or of the disease in any form. Therefore the inflammation,
“and suppuration, when present, are only attendants on the peculiar
“mode of action; the degree in which they take place depending
“more on the nature of the constitution than on that of the poison.

“The formation of matter also, though a very general, is not a con-
“stant attendant on this disease; for we sometimes find inflammation
“produced by the venereal poison which does not terminate in sup-
“puration; such inflammation, I suspect to be of the erysipelatous
“kind. It is the matter produced, whether with or without inflam-
“mation, which alone contains the poison; for without the forma-
“tion of matter, no venereal poison can exist. Therefore a person
“having the venereal irritation in any form, not attended with a dis-
“charge, cannot communicate the disease to another. To communi-
“cate the disease therefore it is necessary that the venereal action should
“first take place; that matter should be formed in consequence of that
“action; and that the matter should be applied to a sound person or
“part.

“That the venereal disease is to be propagated only by matter, is
“proved every day by a thousand instances. Married men contract
“the disease, and, not suspecting they have caught it, cohabit with
“their wives, even for weeks. Upon discovering symptoms of the dis-
“ease, they of course desist. Yet in all my practice I never once found
“that the complaint was communicated under such circumstances,
“except where they had not been very attentive to the symptoms, and
“therefore continued the connection after the discharge had ap-

“peared. I have gone so far as to allow husbands to cohabit with
 “their wives in order to save appearances, and always with safety.

“The matter which is impregnated with this poison, when it
 “comes in contact with a living part, irritates that part, and inflam-
 “mation is the common consequence. It must be applied either in a
 “fluid state, or rendered fluid by the juices of the part to which it
 “is applied. There is no instance where it has given the infection in
 “the form of vapor, as is the case of many other poisons.” — In
 Page 13, he says, “We find from experience, there is no difference in
 “the kind of matter; and no variation can arise in the disease from the
 “matter’s being of different degrees of strength; for it appears, that
 “the same matter affects very differently different people. Two men
 “having been connected with one woman, and both catching the dis-
 “ease, one of them shall have a violent gonorrhœa or chancre, while
 “the other shall have merely a slight gonorrhœa. I have known one
 “man give the disease to different women, and some of the women have
 “had it very severely, while in others it has been very slight. The
 “same reason holds good with regard to chancres. The variations
 “of the symptoms in different persons depend upon the constitution
 “and habit of the patient at the time.—It has been supposed by many
 “that the gonorrhœa and chancre arise from two distinct poisons;
 “and their opinion seems to have some foundation, when we consider
 “only the different appearances of the two diseases, and the different
 “methods of cure; which in judging of the nature of many diseases is
 “too often all we have to go by. Yet if we take up this question up-
 “on other grounds, and also have recourse to experiments, the result
 “of which we can absolutely depend upon, we shall find this notion
 “to be erroneous.” In Page 23, he says, “The venereal poison is
 “capable of affecting the human body in two different ways;
 “locally, that is, in those parts only to which it is first applied;
 “and

“ and constitutionally, that is, in consequence of the absorption of the
 “ venereal pus which affects parts while diffused in the circulation.
 “ Between the first and second of those ways mentioned, certain in-
 “ termediate complaints take place in the progress of absorption; these
 “ are inflammations and suppurations, forming what are called buboes,
 “ in which the matter is of the same nature with that of the original
 “ disease. When the matter has got into the constitution, and is cir-
 “ culating with the blood, it there irritates to action; and, from that
 “ irritation produces many local diseases, as blotches on the skin, ul-
 “ cers in the tonsils, thickening of the periosteum and bones. The lo-
 “ cal or first kind, is what I have called immediate, arising directly
 “ upon the application of venereal pus. Of this kind there are two
 “ sorts, seemingly very different from one another. In the first there
 “ is a formation of matter without a breach in the solids, called a Go-
 “ norrhea. In the second there is a breach in the solids, called a
 “ chancre. Neither of these two ways, in which the disease shews itself,
 “ is owing to any thing peculiar in the kind of poison applied, but to
 “ the difference in the parts contaminated. The readiness with which the
 “ parts run into violent action, in this species of inflammation, is greater
 “ or less according to the nature of the parts affected; which perhaps
 “ does not arise from any specific difference in the parts, but is accord-
 “ ing to the common principle of sensibility and irritability; for we
 “ find, that the vagina is not so much disposed to inflammation in this
 “ disease, as the urethra is in the same sex, because it is not so sensible.”

In Page 29, Part II. Chap. I. he says, “ When an irritating matter of
 “ any kind is applied to a secreting surface, it increases that secretion,
 “ and changes it from its natural state (whatever that be) to some
 “ other, which in the present disease is a pus; and which, taking place
 “ in the urethra, is called a gonorrhœa.”—In Page 62, he says,
 “ The venereal disease, in the form of gonorrhœa in women, is not so

“ complicated as in men; the parts affected are more simple and
 “ fewer in number: But it is not so easily known in them as in men,
 “ because the parts commonly affected in women are very subject to a
 “ disease resembling the gonorrhœa, called fluor albus; and the distin-
 “ guishing marks, if there are any, have not yet been completely as-
 “ certained. A discharge simply from these parts in women, is less a
 “ proof of the existence of the venereal infection, than even a discharge
 “ without pain in men; therefore in general little or no attention is
 “ paid to it by the patient herself; and we often find the venereal virus
 “ formed in those parts without any increase of the natural discharge.
 “ The kind of matter gives us no assistance in distinguishing the two
 “ diseases; for it often happens, that the discharge in the fluor albus
 “ puts on all the appearances of the venereal matter; and an increase
 “ of the discharge is no better mark, whereby we can distinguish the
 “ one from the other. Pain, or any peculiarity in the sensations of
 “ the parts, is not a necessary attendant upon this complaint in wo-
 “ men; therefore not to be looked for as a distinguishing symptom.

“ The appearances of the parts often give us but little information;
 “ for I have frequently examined the parts of those, who confessed all
 “ the symptoms, such as increase of discharge, pain in making water,
 “ soreness in walking, or when they were touched, yet I could see no
 “ difference between these and sound parts. I know of no other way
 “ of judging, in cases where there are no symptoms sensible to the per-
 “ son herself, or where the patient has a mind to deny having any un-
 “ common symptoms, but from the circumstances preceding the dis-
 “ charge; such as her having been connected with any person supposed
 “ to be unsound, or her being able to give it to others; which last
 “ circumstance being derived from the testimony of another person, is
 “ not always to be trusted to, for very obvious reasons. Thus a wo-
 “ man may have this species of the venereal disease without knowing
 “ it

“ it herself, or without the surgeon being able to discover it, even on
“ inspection. It may appear very strange, that a disease, which is so
“ violent and well marked in men, should be so obscure in women:
“ but when we consider that this poison generally produces symptoms
“ according to the nature of the parts affected by it; it becomes an
“ easy matter to account in some measure for this difference. When
“ we attend to the manner in which this disease is contracted by wo-
“ men, it is evident that it must principally attack the vagina, a part
“ that is not endowed with much sensation, or action of any kind.
“ When it extends farther it becomes the cause of disagreeable feel-
“ ings, producing a considerable soreness in all the parts formed for
“ sensation, such as the inside of the labia, nymphæ, clitoris, caruncula
“ myrtiformes, the orifice of the meatus urinarius, and often affecting
“ that canal in its whole length.”

Treating of chancres in women, see Page 225, he says; “ These ul-
“ cers that are formed on the inside of the labia, nymphæ, &c. are never
“ allowed to dry or scab; but those on the outside of the labia,
“ &c. are subject to have the matter dry upon them, which forms a
“ scab upon them similar to those on the body of the penis or scrotum.
“ The venereal matter from such sores is very apt to run down the pe-
“ rinæum to the anus, as in a gonorrhœa, and excoriate the parts, es-
“ pecially about the anus, where the skin is thin, often producing chan-
“ cres on those parts. Chancres have been observed in the vagina,
“ which I suspect not to have been original ones, but to have arisen
“ from the spreading of the ulcers on the inside of the labia. This
“ form of the disease, like the gonorrhœa, both in women and men,
“ is entirely local, the constitution having no connection with it, but
“ sympathetically, and I believe much more seldom in this than in
“ the former.”

With

With respect to the distinguishing marks of chancres, those given by Mess. Bell and Hunter are nearly similar. Mr. Bell, in his treatise, Page 383, says; " They appear at first small milliary spots, which soon rise
 " and form little vesicles, that, upon bursting, discharge sometimes a
 " thin watery fluid; and, on other occasions, a more thick yellow mat-
 " ter; the edges of such sores are generally hard and painful; and are
 " commonly attended with more or less inflammation."

Mr. Hunter, Page 215, describes them as follows, " Venereal
 " ulcers commonly have one character, which however is not entirely
 " peculiar to them, for many sores that have no disposition to heal,
 " which is the case with a chancre, have to far the same character.
 " A chancre has commonly a thickened base, and although in some
 " the common inflammation spreads much farther, yet the specific is
 " confined to this base."

Mr. Bell, speaking of ulcers arising from an old infection, and commonly appearing above the bones, especially such as are most thinly covered with muscles, says, " They first appear in the form of a red
 " and somewhat purplish efflorescence, not circumscribed, but in ge-
 " neral rather considerably diffused. This soon comes to rise into a
 " number of very small pustules, which ooze a thin fretting serum.
 " At first these pustules, when observed through a glass, appear per-
 " fectly distinct, but they at last run together, and form one large
 " ulcer, whose edges are commonly ragged, and somewhat callous;
 " and there is generally a light red appearance, which extends a con-
 " siderable space beyond the sore, over the skin that does not seem to
 " be otherwise diseased. Sores of this kind have frequently a very
 " remarkable appearance, being hollowed as it were, into the form of
 " a cup, generally narrow and contracted at the bottom, with the
 " edges extending gradually till they reach the outward circumference.

" This,

“ This, at least is commonly the case, except when carious bones
 “ happen to lie at the bottom of the sores ; and then they are generally
 “ filled up with troublesome fungous excreescences.”

§. II. Professor Hamilton, of the University of Edinburgh, (see his *Prognostics*,
Outlines of Midwifery, Page 174,) says, “ The proper time to enter on a
 “ course, is between the third and sixth month.” This is certainly the
 best time ; but to prevent injury to mother and child as much as pos-
 sible, I think suitable means of relief should not be omitted, even after
 the seventh month : For, although the disease may prove so virulent, as
 not to be entirely eradicated during this time of pregnancy, yet it may
 be alleviated so much, as to admit of being perfectly cured after the wo-
 man’s lying-in, and the child also may sometimes escape with little or no
 hurt. Should it indeed happen, that the woman is very unhealthy, and
 apt to miscarry, the probability of saving the child becomes less, and an
 abortion, most likely, will ensue.

§. III. With respect to regimen, the patient may be indulged with *Regimen*,
 such eatables as she desires most ; but as to drinkables, she must ab-
 stain from spirits of every kind. She must keep quiet, for exercise will
 heat and irritate the parts ; and if she gets cold, or contracts any other
 illness, the cure may be obstructed, and other inconveniencies arise.

§. IV. If the case is found simply a gonorrhœa, or a discharge like it, *Cure*,
 without any appearance of chancres, or other worse symptoms, the means
 of cure in this state, consist principally, First, in cleaning well the va-
 gina, urethra, and fossa magna, by lotions and injections ; after which, it
 may be necessary to use some sorts of unguents : and Secondly, in keep-
 ing the alvine tube sufficiently open by some cooling and gentle aperient.
 Mr. Hunter, in his *Treatise*, Page 31, says, “ We know that
 “ most gonorrhœas are curable without mercury, and what is still more,
 T “ without

“ without any medical assistance ; but what I believe is never the
 “ case with a chancre.” In Page 82, his ideas coincide exactly with
 what I have observed : He says, “ When the disease is in the vagina
 “ only, it is easily cured. Injections are the best means that can be
 “ used, and after injecting, it may be proper to anoint the parts as far
 “ up as possible, with mercurial ointment, and also to wash the exter-
 “ nal parts often with the injection. If the inflammation has attacked
 “ the urethra, injections there cannot be so conveniently used, as it is
 “ almost impossible the patient can throw an injection into that canal”.

In the first edition, I advised the vagina and labia to be well washed
 with lotions, one made with Mel Ægyptiacum and Aq. Hordeat ; and
 the other with Mercur. corrosiv. sublimat. gr. viii. et Aq. Rosar. ℥viii
 I find the latter recommended by Mr. Hunter, as an injection in cases
 of both sexes ; with this difference, that for men he advises one grain
 of mercury to eight ounces of the water, increasing it gradually as the
 case may require. This rule must be also observed in women, and
 should the proportion of the mercury advised by me cause much irri-
 tation or pain, a sedative, such as the following, may be attentively used.
 Boil, in two parts of water, four ounces of quicksilver, and about three
 ounces of white poppy seed, during the space of about half an hour,
 and then strain off for use. The same argent. viv. may be boiled often
 for the same use. After the vagina and other parts affected have been well
 cleansed by those lotions, it may sometimes be necessary to anoint them
 with ung. cerul. mit. or any simple emollient, if that gives pain, which
 I believe will but seldom happen. By the use of these means, and keep-
 ing the alvine tube moderately open during two or three weeks, by
 some aperient in the form of pills or electuary, it may be expected,
 that the symptoms of a gonorrhœa will either be so much removed
 or alleviated, as to encourage the continuance of this treatment : If
 otherwise, a course of the mercurial plan must be commenced.

Most

Most writers on this disease have, I think, admitted the necessity of using mercury in the cure of it; but, as it appears to me, Mr. Hunter has best ascertained when, and in what manner this excellent antidote is to be used. Not under disguise, as done by impostors and the ignorant practitioners of this age, who vend, wholesale and retail, their nostrums (I had almost said poisons,) even by public authority, to the indelible disgrace of it, but in the most simple and explicit terms; as for instance, whenever the virus shews its effects in form of chancres, buboes, or lues, he directs "the cure to be commenced with only one scruple, or half a dram of an ointment made of equal parts of quicksilver and hog's lard, rubbed in every night for four or six times, on some convenient part of the legs or thighs. If the mouth is not affected, the quantity may be gradually increased 'till two or three drams are rubbed in at each time; but if the first quantity has affected the mouth," he says, "we may be almost certain, that the glands of the mouth are very susceptible of the mercurial stimulus; therefore it will be proper to wait two or three days till that effect begins to go off; and then, to begin again, gradually encreasing the quantity about one scruple every time, till two drams or more are rubbed in every night; care being taken not to affect the mouth so much as to bring on a spitting." In Page 346, he says, "To cure the disease, whether in the form of chancre, bubo, or lues venerea, probably the same quantity of mercury is necessary; for one sore requires as much mercury as fifty sores in the same person; and a small sore as much as a large one; the only difference, if there is any, first depends upon the nature of the part affected, whether naturally active, or naturally indolent." It appears from what he says in other parts of his treatise, that about three or four ounces of this ointment will mostly be found sufficient for the cure; but, after the symptoms have all disappeared, its use should be continued about fourteen days longer, to prevent any return of them.

In

In case of buboes, he advises the mercury to be applied to those surfaces by an absorption, from which it may pass through the diseased gland; for, by destroying the disease there, the constitution has less chance of being contaminated. In the cure of buboes, the mercury should always be made to pass into the constitution, near as possible by the same way through which the habit received the poison, that is, by the same lymphatic vessels. If the bubo be in the groin, apply the unguent on the thigh, &c. When two buboes happen, he observes that they are more likely to suppurate than where there is only one. Should the patient, or any circumstance forbid wholly the use of unction, he in such cases prefers *mercurius calcinatus* to any of the other preparations; and directs one grain of it, made into a pill with any medicine, which the stomach and bowels may require, every night for a week; after which time, should the mouth not be affected, it may be repeated evening and morning; increasing even to two grains if no spitting ensues. The same directions, he says, hold equally good, either with *mercurius fuscus*, or *colomel*; but it requires more of these last preparations of mercury to have the same medicinal effect upon this disease, than the beforementioned; perhaps the proportion of their effects, are about two or three to one: That is, three grains of these preparations appear only equal to one of the *mercurius calcinatus*. The crude mercury given in the same quantities with either of the former appears the most efficacious of all, for fifteen grains of crude mercury rubbed down with any mucilage, seems only equal to one or two of the *mercurius calcinatus*.

Mr. Bell, in his treatise, recommends the quicksilver pill of the Edinburgh pharmacopeia, in preference to all other preparations of mercury. He advises five grains of this pill to be taken every night and morning; gradually increasing the dose till the mouth becomes affected, upon which, it must be left off; and, the body, if not sufficiently lax, opened with some gentle aperient; after which the pill
may

be taken again and continued as occasion is required, taking care not to bring on a spitting.

In the external treatment of chancres, Mr. Hunter advises them to be reduced into the state of common sores, either by incision or caustic. The caustic to be used should be pointed at the end like a pencil, that it may only touch those parts that are really diseased; this treatment should be continued till the surface of the sore looks red and healthy; after having thrown off the last sloughs. When it has arrived at this state, it will be found to heal like any other sore produced from a caustic.—He says, I have dissected a chancre out, and the sore has healed up without any other treatment but common dressings. Nevertheless, as it cannot be certain whether an absorption from the chancre has not taken place, he thinks it is prudent, not only to dress the sore with mercurial ointment, but to throw mercury into the blood also, as above directed, for the security of the patient. He says, I have often used mercury rubbed down with some conserve in the room of an ointment, and it has answered extremely well; calomel used in the same way, and also the other preparations of mercury mixed with musilage, or with honey, answers the same purpose. He thinks the oftener the dressings are shifted the better, as the matter from the sore separates the application from the diseased parts, by which means the effects are lost or diminished. When buboes are inclined to suppurate, mercury may be used in a lesser quantity, than when they appear to be resolved; and when well ripened, the skin being thin they may be opened by the lancet, &c. and dressed with any common digestive.

Mr. Bell says, “that if the bubo does not burst of itself, it must be opened by the lancet, extending the incision about one half or two thirds of its length from the lower part, upwards. The excrescences called warts, are generally cured by the scissars, a hyature, or by caustics, such as the lunar, lapis septicus, blue vitriol, &c.” If the child is born alive, its cure must depend on that of the mother, whilst it sucks.

C H A P. VIII.

OF ABORTIONS BEFORE THE END OF THE THIRD MONTH.

Definition. **A**Bortion is a premature separation and exclusion of the ovum from the uterus, which may happen at any time of pregnancy; but in this chapter, we shall treat of that which ensues before the completion of the third month.

Causes. Various are the causes from whence it may be supposed to arise, as for instance, first, when the uterus is not disposed to the right forming of the membrana caduca; secondly, when this membrane, being formed, sheds or separates of itself prematurely from the uterus; thirdly, when the vessels of the uterus are not pervious enough for the necessary circulation of fluids during the pregnant state; fourthly, when the ovum has not a sufficiency of villi upon the chorion to inoculate duly with those of the inner surface of the uterus, and to assist in the formation of the placenta, &c. fifthly, when the mother has been weakened so much by a disease, as not to be able to supply the ovum duly with proper nourishment; and sixthly, when the embryo or fœtus dies.

Abortions proceed also when no fault appears to be either in the uterus or ovum, from such as the following causes; first, violent commotions of the animal spirits, namely, joy, anger, grief, frights, &c. secondly, violent exercise or stretchings of the body, jolts in a coach, falls, &c. thirdly, an over fullness of the blood vessels, whereby the ovum may be washed from the uterus, at the periodical impulses of the catamenia, or a too great action or contraction of the vessels, as in the small-pox, inflammatory diseases, &c. and fourthly, when layers of congealed blood have accumulated between the caduca
and

and chorion, so as to obstruct the due increase of the placenta, and the circulation between the embryo and the uterus. This frequently happens in the first months, as must be evident to every one who examines the ova which are then expelled.

§. II. The signs of abortion are usually a weight, and pain about the loins and pelvis; a flux of blood from the uterus, which in some continues moderate for several days, and then on a sudden encreasing, attended with sickness at the stomach, and forcing pains, an exit of the ovum ensues. Diagnostics.

In others, the hæmorrhage begins with an immediate gush of blood, wetting many cloths in a few hours; during which time, the coagulable lymph collects in the vagina; sometimes a little of it in the os uteri, in which places it usually forms large and dense clots, which, helping somewhat to resist the contraction of the parts, stimulates them, and consequently excites the pains: the uterus now endeavours to expel its contents; a fresh flux is forced from its cavity, whereby the accumulated clots are washed forwards, and partly evacuated; upon this, there is commonly respite for awhile, and the appearance of the hæmorrhage is often so much lessened, as to make those that attend conclude the affair is ended. But the coagulations form again, the pains recur, a fresh flux ensues; and thus she goes on, till her strength is reduced, and faintness follows. By this time, it is not unusual for the ovum to be arrived in the os uteri; and soon afterwards to be hence excluded, if the pains are forcing.

§. III. Women that are young and healthy will sustain an amazing loss of blood, and yet recover a tolerable state of health in a few weeks. But those who are not so, or who are very corpulent, become liable to faintings; and by the loss of blood, are often subjected to hysterical disorders, leucophlegmaticæ, and sometimes dropsies. Although

though experience proves, that when a flooding comes on, the abortion can but very rarely be prevented, scarcely ever, if attended with pain. It nevertheless teaches, that the hæmorrhage may be restrained, and most of the evils, which otherwise might happen, prevented, when means are timely and properly used. And moreover, that such means as are proper to prevent the miscarriage, are also proper to save the strength; and consequently, the health of the woman; as for example, these following :

Regimen. §. IV. Quietness and coolness must be strictly observed; she may be allowed eatables which are nourishing, and not heating, as bread, boiled lamb, mutton, chicken, or fish of the flat kinds, namely, turbot, brill, flounders, &c. But as to drinkables, none are to be permitted that will accelerate the circulation. Broths of mutton, beef, chicken, or eels, may be used in small quantities, and often, but never so warm as to occasion flushings.

If the flooding is moderate, small beer, or water with wine may be allowed at dinner and supper. But if it is violent, the drink may consist chiefly of orangeade or lemonade, a little Florence wine or claret being added to them occasionally; oxecrate likewise may be drank with advantage.

Cure. §. V. When abortion is portended, the patient should be enjoined to lie in bed, or continue in an horizontal position, and be bled according to the state of the case; that is to say, if a flooding has not yet appeared, or if it has, and is yet only moderate, the strength being tolerably good, eight ounces may be taken from the arm by a large orifice: but if it is violent, four or six ounces only will be sufficient now, though it may be repeated once if the pulse is full, as sometimes happens in habits which are very plethoric. Venesection performed in this manner generally diminishes the hæmorrhage at least;

least; and sometimes, although rarely, puts a stop to it. She may next take, as soon as possible, some styptic medicine, such as tinct. stypti helvetii.—Rosarum, coral. rubri. decoct peruv, &c. Tinct. Thebaica being added as occasion requires.

If these means are speedily used, the hæmorrhage being moderate, and the os uteri scarcely opened, there is still a possibility of preventing a miscarriage; therefore, she may persist in the same plan.

§. VI. When the practitioner is called in late; as for instance, a day or two after the attack, and finds that the flooding has been very copious, and that the os uteri is considerably opened, he may then suppose that the ovum is already detached from the inner surface of the uterus, and will therefore be expelled. Nevertheless, if the patient is not greatly weakened by the hæmorrhage, he may venture to take a few ounces of blood from the arm, by a large orifice; which will, probably, have the effect as above observed; namely, that the flooding will become less violent, &c. But whether this be done or not, the dietetic and medical plan, as above directed, must still be observed.

§. VII. When the flooding becomes violent, attended with grinding or forcing pains, the os uteri being dilated so much as to admit the ends of two or three fingers, he may then be assured that the expulsion is not far off; therefore, to support her strength till this happens, she must be duly supplied with drink and diet as above directed; and to save her as much as he can from the flooding and its consequences, he may prescribe cort. peruv. to be used in any form; or, coral. rubr.—Tinct. Rosar.—stypt. helvet, &c. adding fifteen drops of tinct. thebaic. to one dose of either of them twice a day, or as occasion requires if the flooding be violent.

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§. VIII.

§. VIII. When the hæmorrhage abates, and changes to a darkish colour, as not unusually happens about this time, especially if the above means have been used; the discharge growing paler, and gradually lessening for the space of six or eight hours, he may then venture to conclude that the flooding will not return again with any violence, unless at the time of the expulsion.

Regard being had to the regimen recommended, and to the use of those medicines, the woman's strength is generally so well maintained, that she will recover health, although it is very commonly about a week before the ovum is expelled. It is necessary to observe, that when the flooding has abated and changed colour, if the patient, is costive, she must be relieved, and afterwards kept open by gentle laxatives, even during the use of the above means. Manual aid, at this time of pregnancy, is but very seldom required, and as rarely of benefit.

§. IX. The ova, which are expelled during these months, are usually of the following sizes, namely, in about six weeks after conception, that of a pigeon's egg; in eight or nine weeks that of a hen; and at the end of the third month, not larger than that of a goose.

When abortion has happened, the liquid and soft diet will be most suitable for some days; as for instance, caudle, and broths of different kinds, which do not stimulate during their digestion, and are easily converted into blood.

The medicines required, are those which are soft and cordial, as spermaceti and confectio cardiaca, &c. to which may be added the peruvian infusion last prescribed, in case the patient's constitution is greatly debilitated.

C H A P. IX.

OF ABORTIONS FROM THE THIRD TO THE END OF
THE SIXTH MONTH.

ABortions may proceed, at any time of uterine gestation, from most of the causes which have been enumerated in the foregoing chapter, so that it would be needless to repeat them here. As to the diagnostics and prognostics, they differ chiefly in this, that the farther a woman advances in her pregnancy, the more she is generally exposed to danger, if she miscarries. For as the vessels of the uterus become more enlarged, a greater quantity of blood, in a given time, will flow from their orifices, in proportion as the secundines are loosened. I say generally, for there are instances (not a few) where women flood less in the latter months, than they commonly do in the former: nay, some flood not at all; but then it is to be observed, that those are cases wherein the child appears to have died in the womb, (usually some time) antecedent to the expulsive endeavours; very probably, in some cases, before the secundines even begin to be detached from the uterus.

§. II. With regard to the regimen, the same must be observed as *Cure*. was recommended in the preceding chapter.

When the flooding comes on gently, the pains being not urgent, and the patient not extremely weak, some blood may be taken from the arm by a large orifice at the first onset; or even a day or two afterwards, if the symptoms are slight, and the os uteri remains shut. But if the orifice is opened, the flooding considerable, and the pains increasing, the operator must be cautious.

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Indeed, if the patient is strong and plethoric, the pulse full and hurried, a few ounces being taken from the arm by a large orifice will sometimes help to restrain the hæmorrhage. But this case seldom happens; for the flooding has generally sunk the pulse before the operator is called; and therefore, the taking away of more blood, would be injudicious, if not dangerous.

With respect to medicines, the same method must be observed here, as was recommended in the preceding chapter, taking care to alter or add to it according to the exigency of the case.

This being observed, if the flooding is moderate, the natural efforts of the mother are generally sufficient to compleat the work. Nay, whatever part of the fœtus presents, it matters not; for before the end of the sixth month, it will be forced along the pelvis in any position; and sometimes come forth with very little difficulty.

§. III. When the os uteri is dilated, and the ovum happens to stick in it, the woman being faint with the loss of blood, the operator may pass the point of his finger as far beyond the ovum as he can; and gently endeavour to loosen and help it forwards, by curving the finger round it to scoop it out, whilst pains assist. But in doing this, he must take care not to burst the membranes if it possibly can be avoided. Should they, indeed, happen to be broken, and the fœtus to stick, or lie transversely in the orifice, he may endeavour to facilitate the birth by bringing down those parts, which, lying in the way, obstruct it most.

The orifice and neck of the womb, at this time, are for the most part thick, and open with difficulty, especially if it be the first or second pregnancy: therefore, he must be cautious, and not attempt to dilate; but, waiting for the assistance of pains, now and then pass a finger between the fœtus and orifice; and as the orifice opens by the conatus naturales, he may then pass another; and if it is towards
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the sixth month, perhaps there may be room for a third ; which being done, he must get as far as he can beyond the fœtus, and bring it along through the orifice.

But he must not attempt to insinuate the whole hand, for even at the end of the sixth month, there is seldom room in the uterus to admit of it with safety ; and he must also take care that the fœtus does not separate, especially at the neck, if the head comes last ; for as it is commonly dead, it is sometimes so rotten that its parts will divide by applying but a very slender force, whereby the head will be in danger of being left behind ; and if it is, the os uteri will soon contract before it. A difficulty of this kind once occurred to me ; to obviate which, I passed two fingers within the orifice ; turned the basis of the skull towards it ; pressed together the parietal bones with the tops of my fingers, which being curved, kept this flattened part of the head close to the inside of the cervix, and that of the os uteri ; and the basis being now the lowest, and the thickest part, I kept it down ; and whilst the woman assisted with her pains, I slid it towards me before the points of my fingers till it came entirely through the orifice.

§. IV. When the fœtus has come forth, it is sometimes very difficult to get away the placenta, for the os uteri being very thick, contracts suddenly and shuts it in.

In this case, he may pass two or three fingers (with their ends a little curved) as far into the cavity as he can, and, by degrees, endeavour to bring the placenta forwards, whilst the woman forces down, and assists him with her pains. As he detaches some of it from the uterus (in case it adheres) and brings it towards the orifice, more of it will come within his reach, so that in process of time, the uterus will contract so much above, that the fundus will descend close to the ends of his fingers, and then the secundines may soon be extracted without much difficulty. In doing this he must not hurry, but wait,
and

OF ABORTIONS FROM THE THIRD

and keep his fingers within the orifice, which will prevent its contraction, and help also to excite the pains, which at this time are very helpful. He must also be careful neither to hurt the inner surface of the uterus, nor lacerate the placenta; for, by keeping the latter whole, it will come forth more easily than a part would do, if left behind.

Besides, if it adheres so much that he cannot bring it away with safety now, he must leave it to nature, by whose help it will generally be expelled, though sometimes not till a week or more after the exclusion of the fœtus. Nevertheless, if it can be brought with safety at first, it is always best; for if either the whole or part of it is left, a putrid fever, attended with symptoms which are often troublesome, and sometimes dangerous, will probably ensue.

When either the placenta or a part of it is left in the uterus, and cannot be extracted safely as above directed, the conatus uterini are chiefly to be relied upon. I say chiefly, for although there are medicines which are recommended as emmenagogues, especially pulvis ad partum, pulvis e myrrha compositus, castor, sal succini, and extractum sabinae, &c. yet I doubt their efficacy very much. Nevertheless, I will not deny but they may be joined in proper doses, with such antiseptics and corroboratives as prescribed in the preceding chapter, especially prescription III. In order to prevent putrefaction, as well as to support the patient, an acescent and nutritive kind of diet is also required; for whilst any part of the secundines (which now may be considered as an extraneous substance) remains in the uterus, it commonly becomes so highly putrid, as to excite a fever of that nature, attended with an extremely fœtid, and sometimes very copious discharge; whereby the woman is reduced to the greatest danger.

Uterine injections are therefore necessary, and may be used with advantage; for which reason, I shall subjoin the following case:

A woman

A woman in the fifth month of her first pregnancy, being seized with a flooding, had an expulsion of the fœtus on the nineteenth of November, 1765. The funis being detached by accident, and several hours having passed without any signs of the placenta's approaching, my assistance was desired. It appearing, upon enquiry, that she was only about eighteen weeks advanced in her reckoning; the vagina, and os uteri also, being so much contracted as to render any manual endeavours highly improper, my thoughts were therefore turned upon the use of diet and medicine, the help of nature, and the effects of time. The case proved as follows:

A pretty copious discharge of blood proceeded from the uterus for several days, then changed to a serous consistence, of a dark colour, and most fœtid smell; the pulse grew quick and low, but not very small; she had a pain in the hind part of her head, which soon grew so violent, that she could not endure its being raised from the pillow. This symptom might, in some measure, arise from the loss of blood. She slept but little, was sometimes delirious, had fœtid sweats, and was thirsty. About a week being elapsed, the secundines were to be felt at the inside of the os uteri; but now the discharge was so extremely fœtid, and the putrid steams from the uterus so very powerful as scarcely to be born: nay, the woman had frequent faintings, which seemed to be occasioned chiefly by those noxious vapours; she had an oppression on her breast, and sometimes her speech faltered. I now began to inject the uterus with aqua hordeata, mixtura oleosa cum gummis being sometimes added; after which, the discharge grew rather less, and not so fœtid; the sweats were not so disagreeable, nor was the oppression on the præcordia so great. Her strength, and voice also, grew something better; but she had still a head-ach; restless nights; and she was sometimes faint.

In a few days, a part of the secundines having descended through the os tincæ, I endeavoured to extract them, in order to relieve the

woman.

woman as soon as I could, from what seemed to me an extremity of danger; but they proved so very tender as to separate. Therefore, the remainder being left in the uterus, I was obliged to resume the injection, with the dietetick and medical means, which shall be mentioned hereafter, and wait again for the effects of time.

The discharge was somewhat lessened, after this fragment was extracted, and the smell was not quite so foetid. Nevertheless she had a frequent pulse; there was an oppression about the breast; the head was sometimes a little hurried, and the face looked very pale and sickly. In this manner she went on about ten days longer, when the sensation of a bearing down came on, attended with slight pains, by which the remaining part of the secundines was expelled from the cavity of the uterus, into that of the vagina. I endeavoured now to extract it from the latter, by passing a finger beyond it as far as I could; but it slipped round, and evaded me so much, that I could not bring it through the external orifice. I therefore persisted in washing it with the syringe, in order to prevent the putrefaction as much as possible, and to forward the expulsion.

The woman began now to recover health; the fever and head-ach abated; she had a desire for aliment; and sometimes was able to get out of the bed, and to sit up an hour or two in the day. These symptoms giving hopes, from day to day, that nature would be able to compleat the work, I went on till five weeks were nearly expired since the exclusion of the foetus; and then, being extremely impatient to have the woman freed from this disagreeable companion, whose vapours were still offensive, even at a considerable distance from her, I passed the fore-finger of my left hand through the os vaginæ, and placed its point against the putrid body; then, having passed a pair of small forceps (about the length and thickness of those represented in Plate IX. Fig. I.) along this finger, I laid hold of that part of the placenta which corresponded with the os vaginæ, and brought it gradually

gradually forwards. This hold and several others giving way, I carefully renewed them, keeping my finger still as a director, whereby I avoided any hurt to the woman; and in a few minutes the remaining part of the secundines came entirely forth. This being done, I washed the cavities of the uterus and vagina with an injection of aqua hordeata and mel-rofarum. The fœtid vapours now vanished, and every symptom with them; the woman recovered health with amazing speed; has had a child since; and continues perfectly well.

This portion of the secundines, which had lodged so long in the vagina, was larger than a swan's egg, and was reduced (somewhat) to a conical form, by that of the vagina.

During this illness, the room was kept in a very moderate degree of heat, and fresh air admitted daily into it. The floor was sprinkled with vinegar, and the steams of it (made hot) were smelled to and inspired by the patient; and her cloaths were often changed, and kept as clean as circumstances would permit. At first, whilst the flux was red, her drink was chiefly the following:

I R Aceti vini albi unciam unam,
 Aquæ puræ libram unam,
 Sacchari purissimi quantum
 satis ad gratum saporem.

White caudle and chicken broth (given cool) and puddings were also permitted: but when the uterine hæmorrhage became pale and less in quantity, the caudle and broth were warmed and used more freely. Orangeade was sometimes given also; and as a farther change, the following jelly was allowed, which agreed with her extremely well.

II R Rasuræ cornu cervini,
Hordei perlati,
singulorum uncias duas,
Aquæ puræ libras quatuor,
coque ad dimidiam dein colaturæ adde,
Vini rhenani uncias quatuor,
Succi aurantiorum drachmas sex,
Sacchari purissimi fescunciam ;
Misceantur, et bibat ægra uncias quatuor calidè
ad libitum.

And upon the return of her appetite, chicken and fish, &c. with a glass of wine afterwards, were allowed. The medicines which she took were preparations of the cortex peruvianus, corallium rubrum, confectio cardiaca, castor, extractum fabinæ, spiritus mindereri, nitri dulcis, lavendulæ compositus, oxymel simplex, and syrupus croci, &c.

And the intestinal tube, being first relieved by a glyster, was kept open with a scruple of rhubarb, repeated as occasion required.

C H A P. X.

OF ABORTIONS FROM THE SIXTH TO THE END
OF THE NINTH MONTH.

IT has been observed in the preceding chapter, that the farther a woman is advanced in her pregnancy, the more she is endangered by the flooding which generally attends an abortion; and so she is. Nevertheless, the skilful man-midwife needs not be told, that through the whole of his practice, he will but rarely meet a trial which can prove a truer criterion of his skill and dexterity, than that of conducting his patient safely through a case of this kind, when happening between the sixth and seventh month. For even now, the cavity of the uterus is commonly so small, and its orifice so very thick, and sometimes rigid, as but seldom to admit the hand with such facility and quickness, as sometimes the emergency of the case requires. Therefore, if he understands not the animal œconomy so well, as to judge rightly how long it will sustain the degree of the flooding; and how far he can rely upon the efficacy of medicines; and, these failing, when and in what manner he must attempt to assist by the hand; he may soon either endanger his patient by temerity, or lose her by timidity.

§. II. To avoid these evils, and consequently execute his office well, he must use every proper method to restrain the hæmorrhage, and maintain the strength of the patient till the natural efforts (called pains) come on, which happening, will sometimes compleat the delivery. To this end, the medicinal plan, recommended in the two preceding chapters, may with propriety (it is presumed) be observed

here; during the use of which, he must strictly attend to the state of the pulse, and degree of the flooding. For when the pulse sinks, the flooding continuing copious at the same time, or encreasing suddenly to such a quantity, as to convince him that death must ensue, unless it be prevented by an immediate delivery; he must then attempt the manual operation, viz. passing his hand, with due caution and tenderness, into the cavity of the uterus, and extracting its whole contents in the manner as shall be directed in Part III. Chap. V.

Although he may not always be so successful by this method, as to save the patient; yet, as he may have done his office as well as possible, he is not to be discouraged. For as in other cases, so in this, it is always better to try a doubtful remedy, than to leave the patient to certain destruction. Besides, as the remedy here proposed (though not infallible) is generally successful, he is therefore justifiable in the use of it, be the event as it may. In short, whatever censure may be thrown upon him by the ignorant, he must not regard it; because, according to the testimony of the most skilful in the obstetrick art; and, indeed, according to long experience, there is no other way to save the woman. Dr. Astruc (see his history of the art of midwifery, page 35.) informs us, that we are obliged to a woman for this discovery; as it was first hinted (in 1609.) by one Louisa Bourgeois or Boursier, midwife to Mary of Medicis, queen to king Henry the fourth of France; since whose time, it has gradually prevailed in practice, though not so universally as could be wished, even amongst those who may be supposed to know it.

§ III. When (in the month mentioned, §. I. or at any time from that, to the end of uterine gestation) a small portion only of the placenta is separated from the inner surface of the uterus, it often happens that the flooding proves very slow, consequently very moderate,

derate, especially if the child has been dead for one, two, or more days; the mother's strength remains good, the pains come on, the child presents for the birth, the orifices open, and the delivery ensues in the natural way. It is observable, in some of these cases, that the hæmorrhage comes on pretty plentifully at first, and some clots are discharged. But as the pains increase, the orifices open, the child advances, and the flux abates so much, that by the time the head has descended pretty low in the pelvis, the red discharge is entirely gone off.

Nevertheless, the operator must still be on his guard, and attend to the state of the pulse. If it stands good, or rather rises (which sometimes happens) he may then be convinced, that nature is mistress of the task: but if the pulse sinks, and the patient grows faint, he may then suspect that she bleeds within; that is, in the cavity of the uterus. To be certain of which, he must raise the head a little in the pelvis with one finger, or more if that is insufficient, whereby room will be made for the blood to escape, in case any has been lodged. This being done, if nothing be discharged but liquor amnii, or a little blood mixed with it; all is well, he may rest easy, only taking care to support the patient with cordial diet and medicines, and to wait the event of the natural efforts.

But if she is found to have bled inwardly, which will be known by the emission of clots, or of fresh blood, upon the head's being raised in the pelvis; there is then no time to be lost; the head must be farther raised, the hand passed into the cavity of the uterus, and the operation performed without delay.

§. IV. When a considerable part, or the whole of the placenta is detached from the uterus, the blood pours fast away; yet it sometimes happens, in this extremity of danger, that the woman has no pains; and the os uteri remains thick, and not so open as to admit

two or three fingers to pass with ease; by which circumstances, a young practitioner may happen to be deterred, and thereby not give that immediate assistance which is required; from which neglect, the patient may sink, and presently die.

I must therefore recommend it to him again in such cases (provided he understands them clearly) not to be afraid; but as soon as he has prudently acquainted the relations of the danger, and forwarned them how uncertain the event may prove, although the best endeavours may be used, if the case stands as here described, he must proceed to deliver (as already observed) in such manner as will be described in the next part of this work.

But previous to it, if his situation be such that he can immediately have an experienced man-midwife to consult with, he will certainly do prudently in taking his opinion in every case of this kind, till practice has made him more perfect in the art. If he has no such opportunity, he must then act according to the best of his judgment. See more of this matter Part III. Chap. V. §. X.

A N E W

SYSTEM OF MIDWIFERY.

P A R T III.

OF BIRTHS, AND THE ASSISTANCE WHICH IS NECESSARY
IN EVERY KIND OF THEM.

I N T R O D U C T I O N.

HAVING, in the two preceding parts of this work, endeavoured to throw as much light as we could upon the subject of generation, and on the method of preserving the mother's health during the state of pregnancy, we shall next consider parturition, or the act of bringing forth: which act or operation, though resulting from the established laws of nature, is nevertheless at times, by fundry causes or incidents, rendered so extremely difficult, and sometimes dangerous, as proves the assistance not only of the obstetrick art merely, but of the other parts of medical knowlege also, to be absolutely necessary.

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cessary. By this hint, I would not have it understood that I think births are commonly perilous, and that men only are to be employed in midwifery; no; happy it is that by far the greatest number of births are chiefly performed by nature (I may say almost) alone. Women, therefore, in those which are the most easy and natural, may do the office as well as men; and, I think, should still be employed, whilst they are so honest as to give notice when difficulty or danger appears, that a man-midwife may be called before it is too late. With respect to this point, I have the pleasure to say, that it is strictly observed by most of those midwives I know: but to return; what I mean is this, that as cases in midwifery happen often, where the life of the mother, as well as of the child, depends so immediately upon the conduct of the operator, as in a few minutes to be either saved or lost, men should not take upon them the practice until they have been duly instructed in every part of the art. And now, that midwifery is so well taught in London, there can, indeed, in my humble opinion, be no kind of excuse for attempting the practice of it prematurely.

Though there are several branches, into which the medical science may be divided, and though some of them claim a superiority over the rest, yet they are all so closely connected, that, in my opinion, he who is not well acquainted with all of them, can scarce excel in any. If, indeed, the physician practises in London, or in some other great metropolis, he may be assisted by consulting with those who are the most perfect in their respective branches. But, on the contrary, when his situation, or the circumstances of his patient will not allow of this; what difficulties must he meet with! And through what dangers must his patient run! I am afraid not a few: and for this reason I think students do well (whatever branch their favourite object may be) to extend their knowledge as universally as they can.

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I shall inform the reader, that, in order to assist the student in the theory of midwifery, and refresh his memory, when he comes to the practice of it, I have thought it necessary to give a general anatomical description of the parts, &c. without entering into the minutiae, which, in a work of this kind, are certainly unnecessary.

Some will blame me, perhaps, for quoting but few authors; in regard to this, I shall only say, that whatever practice I recommend, is such, as from experience, I have reason to think the safest and best; and therefore I thought a pompous display of authorities altogether needless.

It will not, I hope, however, be deemed improper to give a short historical view of the progress of the art; this, though unnecessary with regard to the learned, may be both useful and agreeable to the student.

§. II. I shall begin, therefore, with the celebrated Hippocrates, Hippocrates, who, no doubt, had all the information concerning midwifery that could be obtained, either by the ancient records, or the best practitioners in his time; yet, from what he says, it appears that this art was still in its infancy; for, if I do not misunderstand him, the sum of what he directs, in regard to the operative part, is principally as follows:

When the child presents fair (that is, with the head foremost) and cannot be easily delivered, sternutatories are to be used; the patient is to stop her mouth and nose, that they may thereby be rendered more efficacious; and she is also to be shaken, and placed in different positions: the pudenda and orifices must be anointed with emollients, and cautiously dilated; and the secundines extracted by degrees, together with the child.

If the child lies across, presenting to the os uteri, whether it be alive or dead, it must be pushed back, and turned so that the head

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may

may present according to nature (that is, the foremost) and soon afterwards, he says, but if the leg, or arm, or both, of a living child present, they must, as soon as discovered, be returned into the womb, and the child brought into the passage with its head downwards; or if it present with the side or hip, the same method must be used. In the same manner is the child to be managed when dead, unless its body is so much swoln as to prevent the delivery; in which case, he directs to extract it piece-meal, in the following manner:

If the head presents, let it be opened with a small knife, and the bones of the scull being broken, must be extracted with a pair of forceps, for fear of hurting the woman; or by an embryulus, firmly fixed on the clavicles, it may be extracted by little and little. After the head is delivered in this manner, should the child stick at the shoulders, he directs to divide the arms at the articulations; and they being brought away, the rest of the body generally follows with ease; but if it will not give way, the whole breast must be divided, and great care taken that no part of the intestines be denudated or wounded, lest the guts or their contents falling out, should retard the operation; then the ribs being broken, and the scapulæ extracted, the rest of the fœtus will easily follow, unless the abdomen is swoln; in which case, the belly must be punctured, and, on the exit of the flatus, the child will be brought along. If part of the child is already delivered, and the rest will not follow, nor can that which is out be returned, he orders the operator to take away as much as he can of it, and pushing up the remainder, turn the head downwards: but, previous to this operation, he advises him to pare his nails, and use a crooked knife, the point and back of which, must be covered with the fore finger, at its introduction, lest it should hurt the uterus.

When the head is left behind the body, he directs it to be extracted with the operator's hand. And when the child remains dead in the uterus, and cannot be delivered either by the force of nature or medicines

cines, he directs us to introduce the hand, anointed with some unguent, and, dividing the parts with an unguis fixed on the great finger, bring the fœtus along as before.

With respect to the secundines, he says, if they come not immediately after the birth, the woman labours under a pain in her belly and side, attended with rigors, and a fever, which vanish when they are discharged; though, for the most part, the after-birth putrifies and comes away about the sixth or seventh day, and sometimes later. In this case, he orders the patient to hold her breath, and prescribes internally, mugwort, dittany, flowers of white violets, leaves of agnus castus, with garlick, boiled or roasted, small onions, castor, spikenard, rue, and black wine.

And in another place, after having described the methods of delivering a dead child, he says, if the secundines come not away easily, the child must be left hanging to them, and the woman seated on a high stool, that the fœtus by its weight may pull them along; and lest this should be too suddenly effected, the child may be laid on wool newly plucked, or two bladders filled with water, and covered with wool, which being pricked, as the water evacuates they will subside, and the child sinking gradually, will gently draw the secundines away; but should the navel string happen to be broke, proper weight must be tied to it, in order to answer the same purpose; these being the easiest, and least hurtful methods of extracting the placenta.

Whoever is desirous to see more of what he says concerning this matter, may consult Fœsiuse's translation of his works, particularly *de morbis mulierum*, lib. i. et de superfœtatione.

From the time of Hippocrates to that of Celsus, there is nothing material to be found concerning this subject. The writings of this celebrated physician, as well as scholar, last mentioned, shew clearly that he was well acquainted with the history of physic, as also

with the degree of perfection to which every branch of it had arrived in his day.

He begins with *Æsculapius* and his two sons, viz. *Podalirius* and *Machaon*; then descends to those philosophers who were the most celebrated for medical knowledge, and consequently the principal practitioners, namely, *Pythagoras*, *Empedocles*, and *Democritus*; and next to *Hippocrates*, who, he says, was the first that separated medicine from the study of philosophy. Soon after this, physic being divided into three parts, namely, *diæteticæ*, *pharmaceuticæ*, and *chirurgicæ*; he enumerates the principal authors (together with several of their opinions) namely, *Diocles*, *Praxagoras*, *Chrysippus*, *Herophilus*, *Erasistratus*, *Serapion*, *Appolonius*, *Glaucias*, *Heraclides*, *Asclepiades*, and *Themison*. Yet, from his writings, it appears that the art of midwifery was still but beginning to dawn. The substance of what he says (see book vii. chap. 29.) is chiefly as follows; if the child lies across, it may be turned by the operator's hand, either upon its head or feet; if the head is nearest, a crotchet should be introduced, in every part smooth, with a short point, which is properly fixed either in the eye, or the ear, or the mouth, sometimes even in the forehead, and then being drawn outwards, brings away the child. Yet, it is not to be extracted at any moment of time indifferently; for should it be attempted * when the mouth of the womb is shut, there being no exit for the child, it breaks to-pieces, and the point of the crotchet slips upon the mouth of the womb itself, and there ensue convulsions, and extreme danger of death. Therefore, it is necessary to forbear, when the womb is shut; and when it opens, to draw gently; and every such opportunity, to extract it gradually. The right hand must draw the crotchet; the left, being kept within, must pull the child, and at the same time direct it. It sometimes

* This precaution, however, is necessary to be observed to the end of time.

happens

happens (says he) that the child is distended with water, and there is a fœtid sanies discharged from it: if this be the case, the body must be perforated with the fore finger, that its bulk may be lessened by the discharge of the humour; then it must be taken out by the hands only; for, the crotchet being fixed in a putrid body, easily loses its hold; the danger attending which, I have pointed out.

But a child, being turned upon its feet, is not difficult to extract†; for these being taken hold of, it is easily brought away by the hand alone. If it be transverse, and cannot be got into a proper direction, a crotchet must be fixed in the arm-pit, and gradually pulled; in this case, the neck is generally doubled, and the head turns back upon the body: the remedy is, to cut through the neck, that the two parts may be brought away separately. This is done by a crotchet which resembles the former, save that it is sharp all along the internal part. Then we must endeavour (says he) to bring away the head first; after that, the rest of the body; because generally when the largest part is extracted, the head slips back into the womb, and cannot be extracted without the greatest danger.

However, if this has happened, a double cloth must be laid upon the belly of the woman, and a strong and skilful man ought to stand at her left side, and put both his hands upon the lower part of her belly, and press with one upon another; by which means, the head is forced into the mouth of the womb, and may then be extracted by the crotchet, in the manner above described.

With respect to the secundines (he says) whenever a fœtus is brought away, it must be delivered to an assistant, who must take it in his hands, and then the physician ought to draw the umbilical cord gently with his left hand, but not to break it, and with the right hand to follow it, as far as what we call the secundines, which were the

† This method will hold good also.

covering of the fœtus within the womb ; and taking hold of the extremities of those, to separate all the small veins and membranes, in the same manner, by his hand, from the womb, and to extract the whole of it, and any concreted blood that remains within.

Moschion.

Moschion is the next ; according to the opinion of Astruc, he lived about eighteen centuries ago ; but Smellie says, he is supposed to have lived in the reign of Nero, that is about seventeen. He was a Greek author, and wrote a treatise (said to be the first) on the art of midwifery. However this may be, he says more to the purpose than either Hippocrates or Celsus, as may be easily perceived by the following abstract.

In difficult births (he says) the parts are first of all to be relaxed with oil : if the passage of the urine is obstructed by a stone in the neck of the bladder, the water must be drawn off with a catheter ; if the fœces are indurated, give a clyster, and pierce the membranes with a lancet. He says, the best position is that of the head presenting, the hands and feet being mingled and disposed along the sides. If the position is not right, and cannot be amended by putting the woman in proper postures, he advises us to introduce the hand, when the os uteri is opened, and turn the child. If a foot presents (says he) push it back, and bring the fœtus by both feet, the arms being pressed down along the sides : if the knee or hip presents, they must be also pushed back, and the child brought by the feet : if the back presents, introduce the hand, and alter the position, by turning to the feet, or to the hand if it be nearest ; and if the head is large, it must be opened, &c.

Upon the doctrines of these three authors, above quoted, there arose, amongst succeeding physicians and obstetrick practitioners, a dispute, with respect to turning the child for delivery, which existed above sixteen centuries : one party, adhering to Hippocrates, taught, that whenever the child laid across, or presented in any unnatural position

sition, even if the feet offered, it should be turned so, with the operator's hand, that the head might come foremost.

And the other party, abiding by Celsus and Moschion, approved of bringing it by the feet.

Of those who are reckoned adherents to Hippocrates, were Galen (*a*), Galeatius of St. Sophia (*b*), Bernard Gordon (*c*), Eucharis Rhodion (*d*), Mercurialis (*e*), Mercatus (*f*), James Ruef (*g*), Liebaut (*h*), Lazarus Pe (*i*), Varandus (*k*), and Perdulcis (*l*).

And of those who are reckoned to have adhered to the opinions of Moschion and Celsus, were Aetius (*m*), Paul. Ægineta (*n*), Avicenna (*o*), Serapion (*p*), Albucasis (*q*), Valescus de Taranta (*r*), De Roche (*s*), Alexander Benoist (*t*), Ambrose Parey (*u*), and Marinello (*x*).

(*a*) On the use of the parts, book xv. chap. 7.

(*b*) Comment. on Rhafis, fo. 82.

(*c*) Philon partic. 7. c. 16.

(*d*) On the birth of man, chap. iii.

(*e*) On the diseases of women, book ii. chap. 2.

(*f*) On the disorders of women, book iv. chap. 3.

(*g*) On women's diseases, book iii. chap. 2.

(*h*) On women's disorders, book iii. chap. 46.

(*i*) On women's disorders, book iii. chap. 48.

(*k*) On the complaints incident to women, book ii. c. 8.

(*l*) Universal medicine, book xiii. chap. 14.

(*m*) Tetrabibl. c. iv. f. 4. c. 22.

(*n*) On medicine, b. iii. c. 76.

(*o*) Canon. fen. 21. tract. 2. c. 20.

(*p*) Breviary, tract. 5. c. 35.

(*q*) Surgery, part ii. c. 75.

(*r*) Book v. c. 20.

(*s*) On women's disorders, c. 27.

(*t*) B. xxv. c. 36.

(*u*) B. xxiv. of generation, c. 15. 33.

(*x*) On female disorders, b. iii. c. 11. 76.

Paræus.

Paræus (the last but one of those mentioned) wrote pretty fully upon this head, and expressly ordered the child to be brought away by the feet, in all preternatural cases.

Guillemeau, his pupil, adopted his plan; and, after having had experience, confirmed it by publishing an excellent treatise on midwifery.

Soon afterwards, viz. in the year 1668, Mauriceau, after an extensive practice in the Hôtel Dieu and city of Paris, published another treatise on the same subject, which confirming the practice, and far exceeding every thing that had been published before it, this way of delivery gained the victory so quickly, that we may reasonably presume, it is now become almost universal.

Their other way of delivering by hooks and crotchets, sometimes dividing the child previously with edged instruments, like those recommended by Hippocrates and Celsus, in cases where the head did not present naturally, nor could be brought, by the operator's hand, to advance properly in that direction, seems to have prevailed till very lately. Because, upon surveying the works of the ancients, it does not appear that there were any instruments contrived to save children, before the time of Rhazes, an Arabian physician, who lived at Bagdat, in the latter end of the ninth century, when a fillet is hinted to have been used for that purpose.

Avicenna, another Arabian physician, who lived about the beginning of the tenth century, mentions this fillet, and likewise a pair of forceps, which probably was designed for the same purpose. For, after recommending the old method of assisting in natural labours, he says, if the woman cannot be delivered by these, a fillet must be fixed over the head: if that cannot be done, it is to be extracted by the forceps; and, should these fail, the scull is then to be opened; by which means, the contents will be evacuated, and the fœtus easily delivered.

Albucasis,

Albucaſis, who was the next Arabian medical writer, and who lived about a century after Avicenna, has favoured the world with figures of all the obſetric inſtruments then uſed; amongſt which, there is an impellens, to keep up the body of the child, while the operator endeavours to reduce the head into the natural poſition; and two kinds of forceps, whoſe clams, near the points, expand into a circular form, furniſhed with teeth on the inſide. When the head is of an extraordinary bigneſs, he directs it to be cruſhed, or broken with theſe forceps: the larger he calls *almiſdach*, and the other *miſdach*. Beſides theſe, he delineates another pair, whoſe clam is in the form of a rhombus. This, probably, reſembles the pair mentioned by his predeceſſor Avicenna; though, by the form of this pair, and of the other two, we can hardly believe that children could be ſaved by either of them. And as to the fillet, I may reaſonably ſuppoſe, that every one who is acquainted with the nature of ſuch caſes, muſt know likewise how difficult it muſt be to apply it; and when ſuch is applied, how uncertain it muſt be, even then, of ſucceſs. Can we reflect on all this, and not commiſerate the unhappy lots of many mothers, as well as of thouſands of children, who, by ſuch means, could not be ſaved?

Nay, from this time, if any better means were diſcovered, none were made public till 1733, when Mr. Chapman, an Engliſh ſurgeon, publiſhed a treatiſe on midwifery, wherein he deſcribed the uſe of forceps; and gave a cut of them in a ſecond edition, two years afterwards.

Theſe forceps are generally believed to have been invented by the Chamberlens; a medical Engliſh family, which flouriſhed ſince the time of Mauriceau. One of this family, namely, Dr. Hugh Chamberlen, publiſhed a fifth edition of his tranſlation of Mauriceau's firſt volume, 1716; in the preface to which, he tells us, that his father, brothers and himſelf, had attained to, and long practiſed a way to deliver women without any prejudice to them or their infants,

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even in such cases as used to be treated with hooks, by which one or both must be endangered, if not destroyed. Nevertheless, he apologizes for not divulging the secret, by saying, that as his father and two brothers were then in practice, a publication thereof could not be made without injury to them. What he here speaks of, is generally allowed to have been the forceps: if so, they were not long in the hands of the Chamberlens only, for Mr. William Giffard (another English practitioner in midwifery, distinguished by his integrity, as well as humanity) did use forceps at times, from the eighth of April 1726, to the end of his practice, as appears by his cases, which were published after his decease by Dr. Hody; who gives us a figure of his forceps or extractor, that nearly agrees with Chapman's. The other figure is an exact representation of an alteration (as I judge from a pair of them in my possession) I cannot say an improvement made by Mr. Freke; who had a mechanical genius, though he was never distinguished as an artist in midwifery.

Besides these, I have a pair of forceps which did belong to Mr. Drinkwater (late surgeon and man-midwife at Brentford) who began practice in 1668, and died in 1728. The size and form of this pair, agrees with those of Chapman and Giffard, save only that the hooks of the handles are turned outwards. It must undoubtedly be allowed, that the three pair of forceps here mentioned, did far exceed those of the Arabians; nevertheless, they are so very clumsy, and ill adapted, that we can hardly conceive how they could be used without injury, even in the hands of such expert operators as Chapman and Giffard; for they are straight, and measure ten inches in the clams, five and a half in the handles, which make fifteen and a half in the whole length; the rings, towards the points, are roundish, and measure two-eighths of an inch thick; and as to their weights, though a little different, taking the medium, each of them weigh twenty ounces Troy. Their forms may be judged of by the cuts in the books mentioned.

From

From what has been observed, it may seem to some very strange, that so many thousands of years could pass away without the discovery of more proper means for improving the art. The wonder will lessen however, if we consider the extreme slow progress that has been made in most of the other arts and sciences; and more especially if we reflect on the time in which the greatest part of this practice was in the hands of females. And besides, although the attempts which the male practitioners above-mentioned did make to improve it, may seem but rude and awkward to us now, we should, nevertheless, own fairly that we are much obliged to them; for by their hints, the art has gradually advanced towards perfection, as appears evidently by the several improvements which have been made during these thirty years past.

Mr. Livret, an accoucheur in Paris, published a treatise on midwifery (1751) with figures of forceps, invented, as he says, by himself, and used two years before the time he published. These forceps are an improvement on the Chamberlen's in some respects, seeing they are somewhat flatter and smoother on the outsides; their clams too are shorter, and what is more, they are curved, which is the first hint of this kind (so far as I know) that has ever been published. On the outer edges of their clams, internally, there is a pretty high ridge, which cannot avoid being hurtful to the child: but as I had rather describe than criticise, I shall add, that each clam, towards the point, is near two-eighths of an inch thick, and seven inches and a half in length; and the handle eight inches three-quarters; so that in a straight line, they measure in all above sixteen inches; and they weigh also above twenty ounces Troy.

Dr. Smellie (to whose mechanical plan the art of midwifery will ever stand indebted) made several improvements on this subject. He altered the Chamberlen's forceps to a better form, as may be seen by his plates; the length of the clams he reduced to six inches and a half;

and that of the handles to five ; in all, making eleven and a half : the weight was reduced to twelve ounces Troy ; and to avoid disagreeable uneasiness or hurt to the patient, he covered them with leather.

He had also contrived a curved pair, nearly of the same weight and length as the former, which was shewn to me by his successor, Dr. Harvie, on the fourth of July, 1766. This pair was but ill made, and seemed to have been the first attempt. But those of this kind, which he recommended (in preternatural cases, where the body comes forth, and the head sticks above the brim of the pelvis) were usually about twelve and a half, or thirteen inches long.

The doctor took the hint of this curvature, as I imagine, from Mr. Livret ; for when I attended his lectures in 1750, there was nothing shewn of this kind. A pair of scissars to open the head, was also invented by the doctor ; and he improved the crotchets. In short, his instruments were so well received, that they have been generally used almost ever since.

Mr. Pugh, a surgeon at Chelmsford in Essex, published a treatise on midwifery in 1754, with figures of curved forceps, which was first shewn to me by Mr. Cargill, in Lombard-street, in 1764 ; at which time, I left with him a pair of those which I shall recommend hereafter, as a pattern to make some by, that I might finish them myself, and present them to my friends. Before this time, I knew nothing of either this gentleman or of his productions : I have now read his book, and find in it some useful observations ; and as to his forceps, they appear to me preferable to any of those which were published before them ; but to return :

Besides forceps, fillets also of various sorts have been invented since the time of Rhazes, in order to save the child ; and great exploits pretended to have been done by them : but as I doubt of their efficacy, and, on the other hand, perceive the difficulty, if not danger, that must attend the application of any thing of that kind upon the head

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in the pelvis, where so little room is to be found ; I shall say nothing farther concerning them.

§. III. From what has been said above, it appears evident, that here, as in every other art and science, one improvement naturally leads to another. That I may not, therefore, seem to assume too much to myself, I shall now proceed to lay before my readers those hints which suggested to me, what I take to be still a greater improvement.

First then, as to the forceps ; the manner of using which, in the machine, I thought I had perfectly known by Dr. Smellie's lectures : but not long after, being called to a case that required them, I placed one side according to the doctor's directions, and then the other ; immediately upon which, the edges of both came close together ; for, by passing the hand as a director to the second, the head was a little raised in the pelvis, and a vacuity made in the hollow of the sacrum ; which, together with the slipperiness of the parts, made the first side of the forceps slide this way. I endeavoured to slide them apart to their proper places ; but finding that this required more force than I durst venture to apply, I desisted. Another case happened, and I believe a third ; but meeting with the same difficulties, I laid them aside, and never used them more. Some, no doubt, will now exult and say, that this was not owing to any fault in those instruments, seeing so many gentlemen have succeeded by them, but only to my want of dexterity. If so, let them ; but so it happened.

From this time, I became particularly attentive to the operations of nature in all cases ; but more especially in those where the head advanced through the pelvis with great difficulty, in order that I might discover the full extent of her power, and know when and how she stood in need of help. By this attention, I perceived the efforts that she made ; first, to force the head into the brim of the pelvis ; secondly,

condly, to mould it (as it were) into such a form, as to make it passable through the superior narrow part ; thirdly, to drive it forwards, and, at the same time, dilate the os uteri ; fourthly, to move it round before the inferior strait, as described in Part I. Chap. IV. §. VI. and fifthly, to enforce a secondary labour, in order to bring it through the os vaginæ. I say, a secondary labour, for by the time that the os uteri was perfectly opened, and the vertex had arrived at the os externum, the strength of nature was usually exhausted ; the pains, consequently, became feeble and ineffectual ; so that a space of twelve hours, nay, sometimes twenty-four, or more, was commonly spent before she could recover herself sufficiently to renew the attack ; and after all, it was not unusual to spend twelve hours more to compleat the delivery ; the patient exerting her utmost efforts all the while ! Now, by seeing and considering this (though, in my own mind, I had condemned all instruments except hands) I was truly convinced that an artificial force, by means of some instrument, was necessary, in order to deliver women from this hazardous chance, as well as tedious torture, of what I have called (for I do not know what other name to give it than) a secondary labour. I say, hazardous chance, for by the violent continual pressure of the child's head upon the fleshy parts of the pelvis, and the compressure of that upon the head, very bad effects to both the mother and child have been produced ; for the truth of which, I appeal to all who have any experience in the art.

The point, then, was to consider what instrument should be used. The pelvis being full, there was no room for the application of fillets ; and my opinion being fixed, after deliberate consideration, that nothing was, or ever could be invented, that would apply the force required, with more safety to mother and child, than a forceps ; my business, I thought, was to avoid the difficulties which I had met with before, and to contrive such as would give less pain than any of those which had hitherto been invented. Accord-

Accordingly, I invented a pair with a transverse slit or aperture, in one of the fides, at the juncture between handle and clam; through which (this side being first placed in the pelvis) I passed the other gradually round the head, in opposite directions; for this was a director to the other, and kept it also steady. By these, I delivered several women, both with safety to themselves and their children, and ease to myself. In other cases, meeting with much difficulty in applying them cleverly on the head, I began to suspect, that this was owing to the curved or winding form of the pelvis, within which they were to be used, as well as to the form of the child's head, upon which they were to be applied: hence, I bethought myself, that some contrived with curves might still do better. But here arose another difficulty; for in those I foresaw, that one could not be made to pass through the other without twisting at the points, so much as to hurt the woman; and, besides, perceiving that with this joint they could not be applied so commodiously in the pelvis, as to suit every case that might occur, I therefore laid aside the foramen (though a favourite) and chose Dr. Smellie's joints, only taking care that they should be deeper and closer than his. I now made drawings, and having thereby got some forged, I finished them to my mind, as represented in Plate VI. Fig. 1. 2. and 3.

In the execution, my intentions were, first, that the large curves should correspond as nearly as possible with that of the pelvis; secondly, that their points should be thrown forwards, and made round, to prevent their hitching, or even pressing uneasily against any part of the pelvis, and likewise to maintain their hold of the head, whilst it is to be brought forwards in that curved line of direction which nature observes; thirdly, that an inverted curve should be made towards the joints, whereby the perinæum may be saved from injury, the extracting force rightly conducted, and the handles, at the same time, kept from pressing uneasily on the inferior and anterior parts of the pubes;

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fourthly,

fourthly, that their substance should be reduced as much as possible, so that they are not made flexible, or so thin at the edges as to hurt the parts ; fifthly, that their clams be made to press equally on the child's head, and spread gradually from the joint, so as not to dilate the os vaginæ too suddenly ; sixthly, that their clams be of a due breadth, with the outer surface a little convex, and extremely smooth, that they may not press uneasily, or hurt the woman ; seventhly, that their length be such as can be applied safely and commodiously within the pelvis, and at the same time, suit the different sizes of heads as much as possible ; and eighthly, that they be covered with leather of due thickness, and extremely smooth on the outer surface.

These were my reasons for altering the forceps ; and as by due experience I can aver, that, by these alterations, they may be used with much more safety and facility than any others I know of, when applied, as will be directed hereafter. I presume to offer them to the public.

Secondly, as to the perforator and embryulcus, these were produced from the following circumstances : in 1753, being called to a case which obliged me to use a crotchet (as those improved by Dr. Smellie) I found, thereby, the utmost difficulty in guarding the woman from being injured by the point of this instrument ; for each hold which I took of the head tore and gave way, before I could apply force enough to bring the child along.

Another case happened about a year afterwards, that was still worse ; in this, the obstruction being extremely great, and many holds giving way, my hands were excessively hurt in preventing the point of the instrument from striking against the woman. By the difficulties I met with in these two cases (which were the only times I used crotchets) I became as much disgusted with them as with the forceps, and never used them more. Some years afterwards, having
met

met with more cases, which convincing me fully that there was still a demand for this kind of help; I began to consider if something could not be invented, that might be used with less danger and difficulty. Accordingly, I contrived a curved perforator to open the head; and a pair of forceps, one jaw of which was to be introduced into the head, and the other applied upon it. These forceps were curved somewhat in form of the letter S, whereby they might be used with the more conveniency.

A case, requiring the assistance of the crotchet, happening, I used these forceps, and found this advantage from them, that there was much less danger of hurting the woman; but the bones of the skull were so soon broken, that I could not obtain such a hold as was required to extract the child. I therefore laid them aside also; and set about improving an extractor recommended by Dr. Burton of York. My intention in this, was to make one of a simpler construction, and whose form should be more suited to that of the pelvis than his: its shank and handle were, therefore, to be in form of the embryulus hereafter to be described; the point was to be the perforator; and two inches from thence, two arms were to be joined by hinges to the sides of it; each of these arms was to be an inch and a half long, and made to lie along the sides of the shank, with their extremities towards the handle; by which position, when the instrument was pushed forwards till these arms were entirely within the head, and then pulled back, they might spread out in right angles with the shank, by which a pretty good hold must be obtained.

According to this design, I had made drawings, and was making a model in wood also, when Dr. Lewis of Kingstone, happening to call, and seeing what I was about, told me, that it put him in mind of something belonging to fishing-tackle, which consisted of two needles, or very small rods of steel, joined together with a pin; by which means, one of them could turn directly across the other, and

A a

thereby

thereby make two arms. I never saw it, nor do I know the name of it : but improving this hint, I completed the instrument according to the figures in Plate VIII. though with some difficulty in the execution ; for, upon this principle, the point could not serve as a perforator : I therefore made another instrument to answer that purpose, as well as a director, see Plate VII.

I have used these (in cases which truly demanded such kind of help) and being thereby convinced of their superior advantages, I recommend their use before that of any others I am acquainted with.

The round holes towards the point of the catheter, Plate IX. Fig. 2. were invented (as I am informed) by Dr. Middleton, the younger. The point terminates in a little knob, which I contrived to avoid, as much as possible, its causing pain in passing along the urethra ; and when it happens to touch the inner surface of the bladder. As to its length, I reduced that only for the conveniency of carrying.

With respect to the little forceps, Fig. 1. and pessaries, Fig. 4. and 5. and the syringe, Plate X. the hints of these improvements arose wholly from my knowledge of the pelvis and its viscera ; and from cases which required this kind of instrumental assistance.

Directions to
the instru-
ment-maker.

§. IV. Many more difficulties have happened, in getting the above instruments only forged to my mind, than any person could imagine : nay, some I have finished as perfectly as those of the copper-plate, and given them as patterns to mechanics, in London, whose business it was to make them ; nevertheless, many, nay indeed most of them which have been made, are so strangely varied, as to render them, in a great measure, improper for the purposes for which they were intended. I shall, therefore, add a few directions, from which, I think, future errors cannot arise, unless designedly ; and by which the man-midwife may know when they are made right ; if they are not, he must be blameable to have them ; and much more so to use

them ;

them ; for none of the chirurgical instruments require more exactness than they do, if so much.

First then, the forceps must be made of cast steel, or fine iron case- Plate VI.
hardened ; but as in this temper they are apt to be twisted in the fire, the former is most eligible.

They consist of two blades or parts, each of which is distinguished Fig. 1.
by the handle A B, the joint C D, and the clam E P.

Their out-lines and forms must be made exactly to those of the figures ; but as their length and breadth may alter a little by the paper's shrinking after it is printed, we shall add those dimensions which have been found to be the most convenient in the obstetric practice.

Figure 1. represents the exact form and length to which one of the blades must be made before it is bent into its perfect state, as represented by A B C D, figure 2.

The dimensions of this blade, as it thus lies horizontal or flat, must be as follows :

The handle, from A to C, four inches ; the joint, from C to D, Length.
a quarter, or rather more than three-eighths of an inch ; and the clam, from E to P, six inches and seven-eighths ; in all, making eleven inches and near three-eighths.

Its breadth, at A, must be an inch and one-eighth ; at B, four- Breadth.
eighths and a half ; C D five eighths ; E one-eighth and three-quarters ; F, four-eighths ; G, five-eighths ; H, six-eighths ; I, seven-eighths ; K, one inch ; L, an inch and one-eighth ; M, an inch and two-eighths ; N, an inch and three-eighths ; and at O, an inch and near one-quarter.

The clam must have a perforation extending from I to Q ; and corresponding with the curvature of the blade. The edges of this aperture must be taken off or rounded ; so as to form something of a concavity on this side of the blade. The handles also, must have the three

A a 2

holes

holes R, to receive the screws, by which the wooden part is to be fixed.

Fig. 2. Both parts being finished and locked, as delineated by figure 2. they will be shortened about three-eighths ; therefore measure eleven inches.

Length. The length of the clam now from E to F, must be six inches and two eighths ; and its width, from G to H, exactly two inches and a half.

Thickness. The metalline part of the handles I K, must become gradually thin, from the joint towards the extremity ; so that the principal part L M, may be made of wood, for the sake of lightness. The thickness of the handles at I, must be seven-eighths of an inch ; at M, five-eighths ; and from thence towards the joint gradually thinner, making scarcely four-eighths at L K.

The thickness of the clam, at E, must be two-eighths and a half ; at N, one and a half ; G, one and a quarter ; at O, full one ; and at F, scarcely one.

When they are reduced to these forms and dimensions, their edges must be made extremely round, their surfaces very even, and well polished, so that they may neither contract rust, or give pain by any acute or unequal pressure.

They must be neatly covered with the best Morocco leather, which first hath been shaved down till its thickness is rather less than half an eighth ; then, being moistened with water, and laid over with the grain side outwards, it must be extended till its outer surface becomes even and smooth (without any cracks or cuts) and then sewed with waxed silk. This seam must be extremely neat, and as smooth as possible. It must run from A to B, and from that to C, along the under and inner edge of the handles ; and from thence, along the upper edge of the joints D E, to the middle of the inner surface of the clam F G H I. When near the points, the leather being cut into

Fig. 3.

into narrow slips, these must be lapped a little over each other, and neatly stitched down, as represented by the figure. I prefer this leather, because it is not so liable to become loose or spongy, as calves leather or any other, which I have tried.

When perfectly finished, as here described, their weight should not exceed eleven ounces Troy.

The director A B, to the embryulcus, must be made also of cast steel; its length must be about nine inches; its thickness, near the handle Director. A, two-eighths of an inch; and at the groove B, about half an eighth: Plate VII. the edges of the groove must be so much rounded, as not to be liable to cut, or even to hurt any part of the woman; but the point C must be made sharp enough to perforate the head of the child.

The second figure represents a side view of this instrument; the handle C E, the groove F, and the point D. It is curved to suit Fig. 2. the curvature of the pelvis; the point is turned back to come near to a straight line, by which it may perforate the head more readily; and the handle is formed into a ring E, to render it light, and serve also as an index, whereby the operator may know when the groove side is towards his hand, &c. It must be finely burnished, and when finished, need not weigh above an ounce Troy.

The embryulcus or eductor (by either of which names it may be called) must be made of German steel (cast the best); it must be well Plate VIII. burnished, and when finished, weigh about two ounces and a half Troy.

Its length, from A to B, must be eight inches; and from the joint B, to the point C, an inch and a half. The shank E, must be made Fig. 3. as round as possible, and measure, in thickness, about two-eighths of an inch; the extremity A F, which makes the handle, must be bent exactly like the figure; and terminate in a ring transversely to the direction of the swivel.

This

This termination is delineated by figure 2. A, a section of the shank, and B the ring.

Swivel.

The swivel C D, must be two inches and full five-eighths in length; flat on the side towards B, and convex or round on the side towards D, the extremities must be like those of the figure, and made as smooth as possible.

Figure 3. is given as a direction for making the hinge or joint ; A, the groove in the swivel, which receives B, the extremity of the shank ; and C the thickness of this part of it, which is to move in the groove.

Figure 4. is for the use of the operator, as will be observed in its proper place.

Plate IX.

The small forceps must be made of cast steel likewise, and not much tempered ; for it is better to be a little flexible than liable to break in the operation, seeing they are required to be as little bulky as possible.

They must be exactly formed to the figure, having neither edges nor sharp ridges to cause pain, or any hurt to the patient. The inside A of the points, must be made a little concave ; and from the surface of this concavity, there must be raised, obliquely up, many small teeth, like those of a coarse file ; but the edges C, about these teeth, must be round, and very smooth. The length (when finished) need not exceed five inches and a half, nor the weight seven drachms Troy.

Fig. 2.

The catheter A B, need not exceed six inches and a half in length ; its concave and lateral sides must be perforated with a row of small holes C D E, near to the point F, which (as observed before) must terminate in a knob.

Fig. 3.

With respect to pessaries, as their sizes must be suited to the cases that require them, we shall only give the dimensions and figure of one, in three views, by way of example.

They

They may be made of fine cork, first formed by a knife, then smoothed by a file, and finally, covered with a sufficient quantity of white wax. Wood, that can be well polished or made of an extremely smooth surface, is preferable to the above; ivory is still better: but silver is best of all. If any person prefers gold, I have no objection to it. But as they are made hollow with plates of silver neatly soldered together, and so thin, as one of the above dimensions to weigh only two ounces Troy; and so highly polished on the outer surface, as not only to remain very clean, but extremely easy to the patient; I presume there will be very little need to seek any better metal for this purpose.

Their form, externally, must be like the figures, to suit the vagina; and internally, to suit the reception of the os and cervix uteri; what I mean here by cervix uteri, is that part of it which projects into the vagina. The dimensions of that given, being near the medium, viz. the length AB, being two inches and a half; the breadth CD, two inches one-eighth; and the depth EF, an inch and near two-eighths; ^{Fig. 4. 5. and 6.} the sizes or dimensions of others may vary from this, viz. from one-eighth to two, and so on, either above or below it, as the case may require, excepting the depth; which, I think, should be kept very near, if not entirely to this given.

The magnitude also of syringes may vary, but that given in Plate X. I take to be a very commodious one. The barrel of this syringe is made of fine pewter, and contains two ounces and a half; the pipe is made of silver for the sake of cleanliness and stability, admitting still of a due degree of flexibility. It must be four inches and a half in length; the diameter one-eighth; and the point, formed into a knob, one-eighth larger; perforated with four or five holes, wide enough to allow any fluid to pass through them.

C H A P. I.

OF THE NATURAL POSITIONS OF THE CHILD.

AS it is observable that the head, during the first three months, is nearly (if not entirely) as large as the rest of the body; and, when suspended in water by the funis, preponderates, and points obliquely downwards; we may venture to suppose, that it will naturally fall into such a position as this, when ever the mother's body is erect. By what has been observed in Part I. Chap. VIII. Hist. 3, 4, 7, 11, and 12. it must however be owned, that the head does not enlarge in proportion to the rest of the body; but then we see also, by the same observations, that the quantity of the liquor amnii is reciprocally diminished as the fœtus encreases; so that in the latter months there is less room for the head to be turned either across the uterus, or towards the fundus; unless assisted by some accident, as a fall, a jolt in a coach, or some habitual ill position of the mother's body, &c. Moreover, its turning to these positions will still seem more difficult, if we consider, that even at the birth, the lower extremities are not specifically heavier than the head. It is also to be observed by the touch at times, from the middle of the sixth to the end of the ninth month, even when the woman lies horizontally, that the head is commonly downwards, sometimes bearing a little on the os and cervix uteri. I say commonly, for we must allow, that in some cases, it cannot be felt till the labour is begun, and often then not till a considerable quantity of the liquor amnii is run off; when it will descend, and advance first. But in such cases, the quantity of this fluid is usually very large in the latter months.

§. II. Before the end of the fourth month, the quantity of the liquor amnii being large, the fœtus swims about in this fluid, and turns itself into various positions, which may also be excited by the movements of the mother. By this liberty of motion, it often entangles its neck, and other parts of the body likewise, in circumvolutions of the navel string, as may be seen from the following case.

In July 1766, Mr. Thomas Hardwick, surgeon, brought me a fœtus (about four months old) who was entangled thus: the funis A, passed from the navel B, over the outside of the right thigh C, and under that ham D, to the inside of it E; from thence up to the right shoulder F, round across the hind and left sides of the neck to the fore part G; and from thence, across over the right arm H, round it with a twist I; the extremity K coming out forwards between this circumvolution L, and the exilla M.

By this entanglement, the right knee was pulled very close to the anterior part of the body; and the lower part of the thigh was rendered small by the pressure of the string: the neck had suffered also, but the arm most; for the funis had made a deep sulcus all round it just above the elbow. The obstruction of the circulation, by those circumvolutions, was probably the cause of this abortion; but to return.

§. III. The head (according to my humble opinion) points more downwards, and the anterior part of the body more towards one side of the mother, or more directly backwards, as pregnancy advances.

With respect to the other parts, the chin rests upon the breast; the knees incline towards the navel, and sometimes have the upper part of the head between them; the heels come pretty close to the lower part of the nates; and the hands lie flat on the outside of the thighs, or pass a little over them.

C H A P. II.

OF NATURAL PARTURITION, AND ITS SUBSEQUENT
SYMPTOMS.

Definition.

BY natural parturition, is here meant the most safe and speedy way whereby a woman, at the completion of pregnancy, can bring forth a perfect child. There is a peculiar order manifested by every species of animals, with respect to the time of their uterine gestation: but we shall only take notice of our own species, whose females compleat their pregnancies in nine solar months; that is, in the fortieth week after conception.

Cause.

§. II. The reason why women bring forth their children at this time, seems to proceed from a cause common in all animals, and plants also; namely, an energy or power implanted in their natures at the beginning, whereby they are enabled to expel or cast forth their fruits when ripe.

In women there are other causes, which may in some degree assist; as for instance, the child, at this time, being bulky and ponderous, will bear upon the neck and orifice of the uterus (especially in such women who stand or walk much) by which pressure, those parts may become gradually more thin and yielding.

Its muscles also being now perfect, and capable of every action, its motions are usually strong; and as it endeavours at times to stretch itself, the orifice hereby must undergo an additional pressure; and this being now the most dilatable part, and situated not far from the center of gravity, must consequently give way.

Add

Add to these, that the child, at this time, being so large as to require a greater supply of nutrition than what the mother can spare; her whole fabric will the more readily conspire to expel it. And itself being now sensible of the want, will naturally struggle, and somewhat assist in its own dismissal.

Hence, the uterus being irritated, together with such parts as have any dependency on its action; the *conatus uterini*, or expulsive endeavours, called pains, will consequently ensue.

§. III. This parturition displays itself in the following manner: The signs and natural progress. the abdomen, as high as the *scrobiculum cordis*, having been more or less prominent till the preceding day (sometimes a little sooner or later) now subsides above the navel, and the patient feels herself commonly lighter, and more easy than she had been for some time past.

This falling in above is succeeded by a greater fulness or promnency between the navel and pubes, which become more manifest when the *conatus uterini*, called also labour, begin. Some have also a cold chill or rigour in the beginning of labour.

The pulse begins to rise, and the face, which usually before had lost a little of the natural floridness, begins to redden; both of which By the pulse and face. become more perceptible as the labour advances; the alvine tube begins to unload itself; the pains begin about the small of the back, from whence they pass around, forwards, downwards, and terminate in the pubes and pudenda. They usually, at first, return every twenty or thirty minutes; and are so short and weak, as to make but little impression on the neck and orifice of the uterus. But an hour or two being elapsed, sometimes less, they encrease in strength, are more frequent, and cause the child to bear down with a considerable force.

At this time, the *os uteri* begins usually to dilate and give way; the By the os uteri. patient retches, and the stomach sometimes discharges its contents.

To the touch, the labia pudendi feel somewhat flabby and tumified; the vagina is soft, and a little opened and shortened; the os uteri is dilated to about the breadth of a six-pence or shilling, its edges are soft, and in some not thick; it is situated at some distance behind the center of the pelvis, sometimes near the os sacrum, and a mucus proceeds from it, which moistens, and probably helps to relax the vagina.

By the child's head.

The head of the child bears now on the cervix and os uteri; and the membranes being distended with the liquor amnii, and formed into a round bag, presents before it at the orifice during each pain.

Pains increase.

The pains increase in strength; and, instead of twenty or thirty minutes, recur every ten or fifteen; causing the os uteri to give way, in proportion to the impelling force of the child's head upon the amnion tumor.

Os uteri opens.

An hour or two being thus elapsed, they grow still stronger, and return every five or six minutes; the os uteri gradually gives way and opens; the neck consequently becomes less perceptible, especially towards the os sacrum, where it now is scarcely to be felt: but from thence to the symphyses of the pubes, it is still extended before, about a quarter of the head: the amnion-tumor, however, enlarges in the orifice, and advances gradually along the vagina, whereby the latter is shortened and widened.

The os tincæ or uteri, when thus dilated to the breadth of a crown piece, or a little more, usually descends to about the middle of the pelvis, and moves forwards to near its center. As it descends lower, the posterior side obliterates first, and then the lateral sides; but the anterior side remains yet before a considerable part of the head.

Natural position of the child's head when it enters the pelvis.

By this time, the child's head has entered the pelvis, with its face towards one ilium, or a little diagonally backwards, from that part where the psoas muscle and poparts ligament decussate; and when the crown has arrived to the middle of the pelvis, or nearly equal to the

the lower edge of the pubes, the anterior part of the cervix uteri is pretty much obliterated; the orifice is widely opened, its anterior edge is become thicker, and so near to the inside of the pubes, that a little of it only remains before the head; and the amnion-tumor being now large, and advancing fast, serves to dilate the vagina as well as its orifice, to make way for the birth.

When the pains return every three or four minutes, and bear down about the space of a minute, the membranes usually break, and the liquor amnii (commonly called the waters) flows; upon which the pains generally slacken, sometimes the space of half an hour or more, and then recur with double force.

When the membranes usually break.

The head begins now to advance through the os tinæ; and, by a few pains, descends near to the perinæum; during which time, the anterior part or side, T, of the cervix uteri, ascends gradually up between the head and inside of the pubes; soon afterwards, the anterior side of the orifice, which remained before a considerable part of the head, in form of a semi-lunar tumor, comes to the symphyse of the pubes, and quickly passes up between the lower edge of that bone and the child's head, so as not to be felt. About the time this happens, there is usually a second emission of mucus from the orifice, mixed with blood, and the patient commonly retches.

Plate III.

The head now being quickly so far advanced, as to fill the bottom of the pelvis, and to bear against the perinæum; the labia pudendi begin to be extended; the os vaginæ to be considerably opened, perceptibly dilating by each pain, and forming a circumscribed space about three inches wide, betwixt the lower edge of the pubes and the anterior edge of the perinæum; in which space, the part of the head that presents is usually of a roundish form, and the futures may be easily felt.

By this time, the vertex is moved forwards from the side of the pelvis to near the symphyse of the pubes; and nearly as low as its under edge.

From

From this edge of the pubes, the occipital bone of the child's head may be felt a little convex, extending about an inch and a half or a little more backwards ; and the lambdoidal futures on each side of it approaching each other till they meet, and form the apex of an angle towards the center of the os vaginæ.

From this apex, the saggital future may be felt to run obliquely backwards to one side of the perinæum ; and if a finger is passed along it, betwixt the head and perinæum, the fontanel may be felt there a little soft and depressed.

When the head has descended lower, the hairy sculp begins to wrinkle (this sometimes happens sooner) and the sinciput or parietal bones ride a little over each other at the saggital future, and rise up into an arch or prominency, between the angle of the occipital bone and fontanel ; the apex of which arch presenting now in the center of the os vaginæ.

The crown of
the head.

By this arch or prominent part, I mean the crown of the head.

Soon after, the crown advances by each pain ; the face turns more directly to the perinæum, and pushes it out ; the os vaginæ gives way considerably ; and the labia pudendi become distended ; but the vertex remains still at the inside of the pubes, a little to one side of the symphyfes ; and the angle of the occipital bone near the same distance from the pubes as it was before.

By a few pains more the head advances ; the os vaginæ widens ; the labia and perinæum are greatly distended ; the crown keeps yet in the center of the orifice ; the vertex comes now to the lower edge of the symphyfes ; and the forehead to the perinæum. Hence, the widest part of the head extending now from pubes to perinæum, the latter is thereby greatly stretched, and pushed out : but during the intervals of the pains (especially if it is the first labour) the head usually retracts, which gives a little respite to the parts, and allows them time for a gradual dilatation. The woman now vomits, and a little blood

is sometimes discharged from the os vaginæ; she bends her body forwards during each pain, and regains vigour; she breaths quick, the thighs tremble, the eyes sparkle, and she looks wishfully on those around her.

A very few pains now brings the vertex past the lower edge of the symphyfes; at which instant, the perinæum is pushed greatly out, and slips back along the face; the vertex moves forwards towards the mons veneris; the head comes soon without the labia; and by two or three pains more, the whole body comes forth.

§. IV. The birth of the child is usually succeeded by a gush of liquor amnii, and then by some clots of blood. In the space of ten or fifteen minutes, the patient commonly feels a little forcing pain, or uneasiness in the uterus; soon after which, the placenta descends into the pelvis, and then presents at the os tinæ, a little obliquely, that is, with one edge a little downwards; at other times, especially if assisted, nearly transversely, the inside turning outwards; so that when it has arrived in the vagina, it is entirely inverted, and changed into a globular form, the root of the funis being near to the center of that part of it which advances first. As it comes through the vagina, it is preceded by clots of blood; and a few pains more having brought it forth, the membranes being also inverted, follow it in a conic form; for the aperture which was made when the waters broke, and through which the child passed, is now the part which comes last.

The expulsion of the placenta.

Although most or all of the above circumstances commonly attend a very natural birth, especially if it be the first or second; yet, it must be owned, that they are often so extremely various as to render it almost impossible to ascertain them by way of an example. For some births may have even more than those enumerated; and, on the other hand, the greater part have not so many, especially after the second labour.

The

The time of compleating such deliveries is likewise extremely various ; for some take more than twelve hours, and others (by the patients own account) not so much as two, even from the first attack of pains.

Nay, in not a few cases, the operator may, when he is called, find the os uteri not opened above the breadth of half a crown ; the membranes forming but a very little tumor ; the child swimming in the liquor amnii ; and so high above the brim of the pelvis, as by the touch not to be felt, and yet the delivery be compleated naturally in less time than two hours. In others, the head of the child will halt above the brim of the pelvis for several hours after the orifices are considerably opened ; then all of a sudden it will enter the superior strait, and by two or three pains come forth.

But then it must be considered, that those women have generally born several children ; that they have pretty large pelvises ; that they have a large quantity of the liquor amnii ; and that their orifices are lax, consequently very yielding ; so that when the waters begin to flow, and the head has entered the superior strait, a few pains only are required to bring forth the child. It must here be observed, however, that such a hasty passage through the pelvis seldom takes place till the liquor amnii has been so considerably evacuated, that the uterus can apply its force upon the child itself.

Subsequent
symptoms.

§. V. Parturition being finished, the uterus recovers itself with amazing speed ; nevertheless, before the orifices on its inner surface can possibly contract, about half a pint of blood or more, doth commonly flow ; and the coagulable lymph forms some of it into cakes also in the cavities of the uterus and vagina. The womb still continuing its contractile and expulsive power, the diameters of its vessels are gradually lessened ; the coagulations are dismissed from its cavity, and then from the vagina ; so that in twenty or thirty hours, they commonly

monly being totally discharged; its bulk now is seldom larger than what it was in the fourth month of pregnancy.—In a few hours after parturition, the patient perspires freely, the skin becomes moist, and the pulse quiet.—Between twenty-six and thirty-two, generally about twenty-eight hours, the milk begins to flow into the breasts; at which time the lochia (or uterine flux) begin to lessen. Her appetite, at this time, is usually good; and she makes urine freely. About the thirty-sixth, or thirty-eighth hour, the breasts are pretty full; the lochia are pale in colour, and less in quantity; and she sweats gently over the whole body.—In forty-six or forty-eight hours, her appetite is still good; the sweat continues; she makes urine naturally, but has no stools. The breasts grow still fuller; and the lochia now changed so much in the colour as not to be red.—At the sixtieth hour she still perspires freely; the breasts are very turgid; the pulse begins to rise; and the lochia continue pale, and little in quantity. Some about this time have a natural stool or two, but the generality are constive for several days longer.—At the fourth day she still sweats; is thirsty; her pulse is quicker and fuller; her head aches; the breasts continue turgid; the lochia are pale, and small in quantity; and her appetite fails.—On the fifth day the breasts begin to soften; the lochia return, and change to a reddish colour; the skin continues moist; and the head and pulse become easier.—On the sixth day she has no sweat, but the skin is a little moist; the head is very easy, and the pulse quiet; her appetite recovers, and she has no thirst; the breasts are lessened; the lochia are now pretty copious, and of a good red colour.—At the seventh or eighth day the breasts are easy; the lochia begin again to diminish, and to change from the red to a pale colour, and by the twelfth or fourteenth they commonly go off; some indeed, have them continue longer, others have them cease in less than a week; and then have them copiously at the month's end; yet all these recover health equally well.

C H A P. III.

OF THE ASSISTANCE REQUIRED IN NATURAL PARTURITION, AND DURING THE MONTH OF CHILD-BED.

WHEN the man-midwife is called to a patient, who believes herself to be in labour, he should examine into the case (especially by the touch) without delay; for it often happens, that he may be sent for more than once before the labour is begun: therefore, if a right judgement is not formed at first, he can neither give relief, if the pains are spurious, nor proper orders, if labour is begun. Besides, if it should happen not to be labour, and he, waiting in ignorance, permit the pains to afflict her many hours, and then to go off without assistance, as sometimes will happen when the woman is worn out with fatigue, he thereby will expose himself to be censured for unskilfulness.

When it is known that the pains are spurious, the patient may be relieved by the method recommended in Part II. Chap. IV.

But if it be real labour, the nurse must have orders to get every thing ready which relates to her office*; and then he must attend the patient.

When the alvine tube has not been relieved at the beginning of the labour, the rectum must be emptied by an emollient enema, before the child's head comes low in the pelvis; for this will help to facilitate the birth, and prevent also some other inconveniencies; which, without such precaution, commonly ensue.

* This office is so well explained in my little tract entitled *Friendly Cautions to the Heads of Families, and to Nurses, &c.* that it is necessary for every man-midwife, as well as nurse to read it.

If she has slept badly for some time past, rest and quietness must now be enjoined; she must not be heated with strong liquors, or forcing medicines; but duly supplied with cooling or refreshing diet, especially of the liquid kind, as tea, panada, caudle or broths, &c.

If refreshing sleeps have preceded, she may then be permitted to lie, stand, walk, or sit, as she likes best, and be entertained with a cheerful friend or two; but she must never be fatigued with much company.

Till the child's head comes low in the pelvis, and the pains grow urgent, the operator has little more to do, than to enquire, at proper times, into the progress of the birth, leaving always the patient as much to herself as the nature of the case will admit, lest his presence should incommode her.

In this manner she may go on till the amnion-tumor is come near the os vaginæ; and the os uteri has descended low, and is opened near three inches in diameter; the child's head also bearing perceptibly upon it during each pain; at which time, if the pains are strong, and return every three or four minutes, she must then be placed (the bed being first prepared as directed in the little book quoted, Chap. II. §. IV. and V.) in the following position, namely;

On the left side obliquely across the bed, with the head and shoulders a little raised, and the knees brought forwards, so that the thighs and trunk make a right angle. One end of a long cloth being fixed to the foot of the bedstead; the other end will serve her to hold by during each pain: at which time if the feet are placed against the post of the side where the operator is sitting, she may apply her strength with good advantage: and, being properly covered, may assist herself without the inconveniency of women's sitting round and holding her, as was formerly the custom, whereby much mischief has been done, by over heating the patient.

The position
of natural
parturition.

These

These things being observed, it will be needful now to anoint the os uteri, the vagina and its orifice, the labia pudendi, and the the perinæum, in a proper manner, with some agreeable emollient unguent; and to repeat the same frequently.

How and
when to break
the waters.

The amnion-tumor being now arrived at, or within the os vaginæ, the os uteri descended below the middle of the pelvis, and well opened; the operator may endeavour to perforate the membranes, by pressing the end of his finger against the tumor, or by rubbing it betwixt the end of his finger and the child's head, during the time of a pain; by which means they usually break, and the liquor amnii flows. But if they are so very strong as not to break by this method (as sometimes happen) the end of a probe, catheter, or quill, will readily do it.

In the first and second labours, he should never break the membranes till they are at, or without the os vaginæ, the os uteri being largely opened at the same time. When they are broken, the pains, as has been observed in the preceding chapter, sometimes slacken about the space of half an hour, during which time the liquor amnii runs off to about the quantity of a pint; in those who have had several children sometimes more. By this discharge of liquor amnii, the os vaginæ and labia pudendi are lubricated and softened; and the uterus having now its distention taken off, in proportion to the quantity discharged, contracts with greater force upon the child, by which the latter is driven forwards on the os uteri, and makes it give way so fast, that by a few pains it is perfectly dilated; the head fills up the bottom of the pelvis, and the crown presents in the os vaginæ.

How to con-
duct the head
through the
os vaginæ.

Now the operator must attend, and take as much care as possible, lest the os vaginæ and the perinæum be over-stretched.

The head usually halts here, several pains; during which time, the parts again must be well anointed; and as it comes through the orifice,

orifice, and pushes that, together with the perinæum, violently out; he must support them in manner following :

The patient must bend herself more forwards than she did before; during which time, the operator must place the anterior edge of each hand, against each lateral edge of the os vaginæ, with the palms towards that part of the head which comes forth, and each thumb on each side of the anus, and posterior part of the perinæum; or the whole of the latter, and the anus being covered with a cloth, he may then support the parts of the woman, (not counteracting the pains, and equal extension of those parts, as seem to be implied by the directions of some teachers) but till the child's vertex gets past the lower edge of the pubis; and as it advances, the head must be kept forwards, that is towards the pubes, by pressing gently with his thumbs upon the posterior part of the perinæum; sustaining, at the same time, the labia and the orifice with the anterior edges of his fingers.

When the forehead has thus got to the posterior edge of the os vaginæ, he must slip the perinæum gently back over the face, and keep the head forwards, towards the outside of the pubes, at the same time; upon which it will come entirely without the orifice.

He may now wait for a pain, and as it approaches, place a hand on each side of the child's head, with the fingers under the chin, and thumbs on the occiput; then extract cautiously as it comes along.

How to bring
the Body.

At this instant the birth is sometimes detained awhile by the broadest part of the shoulders not readily turning so as to correspond with the widest dimensions of the pelvis. Although some such cases had occur'd to me before I first wrote; yet, I must confess that no particular attention was paid by me to them, till I read Mr. White's observations on natural births, in his Treatise pages 88, 89, 90. When I have met with any such since, and found the mother's efforts not effectual, in molding as it were, moving round, and propelling the child's shoulders, as are usually done in about the space of ten minutes, I have passed a finger or two along that side of the neck, which I felt most convenient,

till it arrived to such shoulder as seemed to bear hardest against the mother, and, by sliding that part a little aside, towards the widest dimensions of the pelvis, I have always found the difficulty removed.

As the child's body comes forth, it must be curved or bent forwards. Whether the anterior side is towards the mother's back or not, it is no matter; care must be taken to keep the child's face as near the os vaginæ of the mother as can be safely done, till the feet are entirely disengaged. By this position the funis will not be overstretched, should it even happen to be circumvoluted on the neck.

Mr. White's observations beforementioned are as follow :

"I must," says he, "here take notice of an error in practice, which has not
 " to my knowledge, been remarked by any writer on this subject; it
 " depends on the following principles;" (speaking of authors,) he says,
 " Those great improvers of the art, considering labour as a mecha-
 " nical operation, have perceived, that the head in its passage through
 " the pelvis must alter its direction, according to the width of it in
 " different places; but here they stop short. They have not applied
 " this rule to the shoulders, which not forming so great an obstacle as
 " the head, are yet certainly capable, by their bulk, of forming a re-
 " sistance, when offered in a wrong position. Now the greatest breadth
 " of the head being in a line, which forms a right angle with one
 " which passes through the shoulders, it necessarily follows, that all
 " the turns made by the shoulders must be opposite to those of the
 " head. When the head passes with the face towards the sacrum, and
 " the hind part to the pubis, the shoulders must pass sideways; and
 " vice versa. Accordingly we find that this is the way in which nature
 " herself proceeds, though art has neglected to pay attention to it." But
 to return,

I have attended many hundred cases where the funis has been round the neck, in some twice, in others compleatly thrice; yet, by observing the above method of curving the body, I never found the least necessity for dividing the cord till the child was born; nor have I ever observed the least hurt or inconvenience to have happened from so doing.

When

When the child is born if the neck be entangled, it must be quickly disengaged, by passing the funis as often over the head as it was round the neck; and when this is done, it must be laid aside as before; namely with its face towards the mother.

How to dis-
entangle the
neck.

A ligature must be passed round the funis, and tied at the distance of two inches from the navel; the funis then must be divided by scissars, at about an inch from the ligature, on that side of it next the mother. This being done also, the child may be wiped dry with a soft cloth, then wrapped in the receiver, and given to an assistant.

How to tie
and divide
the funis.

Now warm linen having been applied properly to the mother, as soon as the child is born, lest cold air should rush too suddenly into the cavity of the uterus, which, at this time, being very open, the patient thereby might receive injury; he may wait a little for the approach of the placenta.

§. II. Though, in many cases, the secundines may come away by the natural efforts of the mother alone (as observed in Chap. II. §. IV.) yet, as the time required for this purpose might often be so long as to subject her to a cold, or to a flooding, or to some other inconvenience, an early assistance becomes necessary; not only to prevent such evils, but to relieve her from anxiety, as soon as her delivery can be effected with safety.

How to assist
the expulsion
of the placen-
ta.

To this end, about half an hour should be allowed (most commonly not above the space of fifteen minutes is required) to permit the uterus to contract by degrees: for, as the capacity of its cavity lessens, the secundines will be gradually and very naturally loosened, and then washed off by the flux of blood which at this time must issue freely, until the orifices of the vessels are considerably contracted, as hath already been observed. Now to forward this contraction, &c. and, at the same time keep the patient from fainting, let the following method be duly observed.

By an external compressure on the abdomen.

As soon as the funis has been tied and divided, and the child is given to an assistant, the patient must be directed to compress her abdomen with one or both her hands, as equally as she can, descending from the epigastric to the umbilical region. When this pressure has been made about ten minutes, she may fetch a deep breath, retain it, and force down, whilst the operator assists as follows:

By tightening the funis.

Having taken hold of the funis, without the labia pudendi, with his left hand (either by rolling it about one finger, or any otherwise) he must then pass one or two fingers of the right hand into the vagina, and place their ends against the funis, as high as he finds necessary, to keep that part of it back in the center of the pelvis (or rather behind it) whilst, with his other hand, he pulls the other part externally. When this extension of the funis has been continued about half a minute, he must then desist: but the compressure on the abdomen must still be continued. In about three or four minutes (or sooner if a forcing comes on) he must extend the funis again; and when this has been repeated once or twice, the compressure on the abdomen must be made lower; as for instance, more directly upon the hypogastric region; by which means, the placenta will generally come forth in about ten or fifteen minutes from the birth of the child, unless its adhesion be very firm; if it is, the uterus may be felt bulky towards the umbilical region; and therefore, one hand of the operator must be applied now, instead of the patient's, on the outside of the abdomen, to make as equal a compressure * upon the uterus as he can, and to bring its fundus down at the same time towards the pubes; whilst the funis is tightened below with his other hand. By this method, the expulsive force of the uterus is commonly so much

* I have long used this method; and have the pleasure to find the propriety of it confirmed by the practice of Dr. Hunter and Dr. Harvie; the latter of whom appears to have been the first who recommended it in his lectures.

assisted

assisted as to make the placenta descend into the pelvis; and then advance through the vagina, especially when it comes obliquely, or with one edge foremost.

But when it is very large, or offers transversely, it commonly passes the superior strait with difficulty, for it inverts, and changes into a globular form: therefore, to facilitate its expulsion, the patient must compress the hypogastric region, whilst the operator, with one hand, extends the funis, and passes one or two fingers of the other as high as the placenta, to bring down a part of its edge; this being done, it will soon come wholly forth, by only extending the funis gently forwards from under the pubes.

How to bring the edge down when it offers transversely.

The placenta now being without the labia pudendi, the spongy chorion must be allowed a few minutes to be cast off from the inner surface of the uterus; then the operator may grasp the membranes with one hand, between the placenta and os vaginæ, and tighten them a little. If they are loose, and come easily forwards, he may proceed till they are extracted: but if they are fixed, he must rest at intervals, and tighten them again gently, as the patient forces down. Very frequently they come perfectly away by these means, at other times the adhesion is so firm, that it is necessary to grasp them at the inner orifice, and wait awhile, making them now and then only a little tense, as the patient forces down; and then, in a short time, they generally come perfectly away.

How to bring the membranes.

If these cautions are not observed, but the secundines brought away precipitately, more or less of the spongy chorion must be left behind, occasioning (as I have reason to believe) a fever; a great uneasiness in the region of the pelvis; and an extremely fœtid discharge from the uterus, by the irritation and putrefaction: for I have been called to cases, several days after the birth, where the placenta having been too hastily brought away, the greatest part of the membranes have been

left behind ; nay, part of them now have been hanging out of the os vaginae, smelling extremely offensive, the woman in great pain, and the fever appearing to have putrid symptoms.

It must be owned however, that in some cases where the chorion adheres, it is somehow so brittle in itself, as to separate from the placenta, though little or no force has been applied by the operator ; and yet, when it has remained in the uterus almost a week (sometimes without any bad symptoms) it will then be expelled by nature alone.

But as this membrane is not always so brittle, nor its expulsion (if left behind) produced so favourably, it is best therefore to bring it away very cautiously at first. I say cautiously, for if it be suddenly stripped from the uterus, the latter perhaps may be more injured thereby, than if it had sustained so sudden a separation from the placenta itself ; and therefore, an inflammation, with its consequent train of evils, may thereby be occasioned.

The above method of bringing away the secundines, is generally effectual in completing a safe delivery : but as there are cases which happen, even sometimes after the birth of the child hath been very natural and speedy, that are attended with much more difficulty than those above-mentioned ; I shall treat of them here ; they are three, viz. first, a flooding ; secondly, a firmer adhesion of the placenta to the uterus, than what is most natural or usual at this time ; and thirdly, a particular constriction of the uterus itself. On each of these, I shall beg leave to make some remarks, and then describe such means of help as I have found to be the safest.

First then, with respect to flooding, I would have the operator consider, that some women who are very plethoric, especially after their circulation hath been accelerated by the labour, have a pretty copious discharge of blood between the birth of the child and expulsion of the secundines, which is rather beneficial than otherwise. He
must

must also remember that the approach of the placenta (as hath been observed in Chap. II. §. IV.) is often preceded by some clots of blood; so that when the compressure is made, as above-mentioned, and he finds that the placenta advances, though but very slowly, yet he may rest satisfied, and deliver in the way just directed: but if the hæmorrhage is violent, without signs of the placenta's advancing, the uterus remaining bulky above the pubes, or higher, notwithstanding that a proper compressure hath been made; the pulse being considerably sunk, and the patient beginning to be faint, he must then assist by an introduction of the hand, as shall be directed hereafter; and which (to me) seems the more necessary to be attempted early, as in several cases where I have been obliged to do it on account of the flooding, I have found a part of the placenta detached, and yet another part, nay, often the greatest part of it, adhering so firmly to the uterus as to feel like one.

Secondly, when the uterus doth not shed the placenta in an hour or two after the birth of the child, notwithstanding that such assistance as the above hath been given; then (in my humble opinion) the most eligible way to compleat the delivery, is by an introduction of the hand. For, allowing that the secundines will be cast off and expelled from the uterus by the force of nature (as hath been observed by some gentlemen who have had opportunities to see the extent of nature this way) yet, seeing one, two, three, or even more days may sometimes be spent before this event may happen, should a flooding or any other illness supervene in this time; it is not a clear case (with me however) whether the uterus, after this delay, will not be more susceptible of injury; and the operation also, be attended with more difficulty than if it had been done at first: and besides, how will the operator be acquitted of blame?

How to assist when the placenta doth not duly separate from the uterus.

But what inclines me most to the giving of such early assistance, arises from long experience ; for in women of all habits of body, I have met with the adhesion seemingly so firm, as if both uterus and placenta had been but one viscus ; and yet, by making the separation as shall be directed hereafter, I do not know any bad consequences that ever proceeded from it. Nay, I have often observed, that several of those women have had fewer after-pains, and recovered sooner than many others whose secundines came naturally away. Nevertheless, I will acknowledge, that had I sooner known the method of assisting by compressing the abdomen, I might probably have succeeded in some of those cases, without introducing the hand : but to return.

The third case, wherein I think an introduction of the hand is required, is when the placenta is detained by a local constriction of the uterus, which happens about midway, between its fundus and orifice, or rather a little towards the latter.

This stricture may be felt by applying the hand on the outside of the abdomen, about the upper part of the hypogastric, or lower part of the umbilical regions ; for there is a transverse fulcus there, as if the uterus was encompassed with a ligature ; and when the hand is passed up internally, the contracted part of the uterus feels like a round orifice, not broader than half a crown, and is sometimes very difficult of dilatation. And the hand being passed through it, the placenta is sometimes found loose, and at other times adhering very firmly to the upper part of the uterus. Several such contractions of the uterus, as this mentioned, have occurred to me ; but, for the sake of brevity, I shall only describe two, viz.

On the twenty-fifth of August 1765, I was called to a young healthy woman, who was then in the beginning of the eighth month of her first pregnancy. During the two preceding days, she
had

had been affected with flight pains, which now were pretty strong and frequent. The os vaginæ was opened to about the breadth of a crown piece, or rather more. The os uteri was very considerably dilated; and both this and the vagina were filled with the amnion-tumor. By this tumor, the perinæum in a little time was pushed out, and the os vaginæ became dilated gradually during each pain; but neither whilst the pains were on, nor in the intervals, was there any part of the child to be felt presenting.

The lower part of the epigastric, and upper part of the umbilical regions, were very hard and prominent; but immediately below the navel, that is, close to its under edge, there run a sulcus entirely across the abdomen; and between this furrow and the pubes, the abdomen felt remarkably soft.

As it was the first labour, I thought of allowing as much time as the case would admit of, in order that the orifices might be well opened. But before I had waited an hour, a discharge of blood happened, which seeming to proceed from the cavity of the uterus, I desired the patient to be placed for delivery. This being done, I passed my hand gently through the os vaginæ, which was yet a little tight: I then broke the membranes, and although my hand was quickly passed through the aperture, yet there flowed the largest quantity of liquor amnii that I ever met with in the first pregnancy. But what surprised me more, was this; having passed my hand very easily through the os uteri, and up above the brim of the pelvis, I felt neither child nor placenta, although the space there seemed large enough to have contained them both. Suspecting now that the uterus was contracted in the middle, or to find it a case of a worse nature, I advanced to the umbilical region, and there felt a round orifice, about the breadth of a crown piece, in the uppermost part of that part of the uterus which formed the cavity wherein my hand was. Having found this orifice, I passed my hand through it, though not
without

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without some difficulty, for the contraction was pretty strong. Having now reached the child, I very easily met with the feet, and brought them down; after which, I finished the delivery in the ordinary way of turning. The placenta followed the child immediately, so that the discharge of blood, which appeared before the operation was attempted, had most probably been occasioned by its separation.

The child seemed lifeless about a minute, then opened its mouth, inspired, sighed, and cried. It however died in the month: but the mother recovered perfect health in the usual time. The other case was as follows:

On the first of July 1766, I was called to a patient who had a pretty copious discharge of the liquor amnii, attended with some pains, which soon went off. The os uteri was high in the pelvis, but still thick, though a little dilated. In this manner she went on, the waters draining off at times; but no part of the child could be felt till the fourth of the same month, when the head presented high in the pelvis, and the os uteri became dilated to about the breadth of half a crown. She now had slight pains for five hours; during which time, the birth advanced very little, though the os uteri opened considerably; but soon afterwards the pains grew strong and frequent; and, in about half an hour, the head and shoulders came forth. The rest of the body followed with some difficulty; the child was large, and remarkably long, and the funis was once round the neck. I now extended the cord, at times, for above half an hour; but finding the secundines did not advance, I passed my hand, and found the uterus violently contracted about midway between the orifice and fundus; and even formed into so small a ring, that at first I could pass but two fingers; and although I endeavoured to dilate it gradually, in order to insinuate the others one by one; yet the stricture was so firm as to occasion difficulty in passing the hand. However, by persisting, I

gained

gained admiffion with fafety; and found the placenta, with fome of the chorion round its edges, adhering to the fundus uteri; I feperated thefe adhesions gradually, and then brought away the fecundines, as fhall be defcribed hereafter.

I muft obferve, that this was the patient's twelfth child, and that the placentæ of all the preceding ones had come away naturally. I have delivered her fince; and the birth of the infant was very natural; the placenta did not advance quickly; but, the funis being gently tightened, and a compreffure being properly made upon the abdomen, the delivery was then compleated.

Now what hath been faid being rightly underftood, and the operator having found it neceffary that an introduction of the hand is to be made for obtaining the after-birth; he muft take hold of the funis by one hand (either will do) and pafs the other, the nails being cut extremely fhort, along it till he arrives at the placenta, which frequently will be found adhering to the very fundus, but more commonly towards one fide, viz. near the orifice of the fallopiian tube.

How the placenta is to be detached from the uterus, and extracted by the hand.

In paffing up the hand, if there happens to be a contraction of the uterus, as juft obferved, it muft be slowly dilated, by the introduction of the fingers firft, then the thumb, every now and then fpreading them afunder, till the whole hand has gained admiffion; the other hand having been applied on the out fide of the abdomen, oppofite the fundus uteri, to keep that down at the fame time. By this method, I have always overcome the above difficulty, without the leaft hurt to the patient. When the hand has got through the ftricture (if there was any) it is to be paffed along the funis to its root; and from thence (if the operator is yet unexperienced) fhifted to the edge of the placenta, the higher upon it the better. It however muft be here obferved, that as the hand is now for the moft part on the infide of the amnion, the forefaid edge (efpecially if it adheres firmly) will not always be diftinguifhed till it is fearchèd for deliberately;

liberately ; and then it may be felt between the membranes and inner surface of the uterus ; though sometimes the placenta is situated so as to render this somewhat difficult.

The operator having considered this, and placed the back of his hand contiguous to the membranes, that is, towards the inner surface of the uterus ; he must now insinuate the ends of his fingers between this surface and the placenta, whilst a proper compressure is made externally. To insinuate the ends of the fingers between those parts, it is often a little difficult, for they are as it were entangled by the membranes ; yet, by keeping them close to the placenta, and now and then curving their points, they will get behind part of it ; after which, the separation of the placenta from the uterus will gradually take place, by sliding the hand gently from side to side. While this is doing, if the membranes are so tough as to remain before the ends of the fingers, it is not the worse. If they break (as sometimes happens) he will then feel the inner surface of the uterus smooth on the outside of his fingers, and the spongy substance of the placenta a little rough on their inside. The separation being thus cautiously continued, by insinuating the ends of the fingers every now and then between a fresh part ; then sliding the hand a little from side to side, till the placenta is wholly detached, he may then take hold of the lower part of it with that hand, and the funis externally by the other ; which being done, the whole will come easily forth.

In doing this, if any part of the chorion sticks, or follows not readily, he must hold the membranes awhile till the uterus contracts a little more ; then, for the most part, the separation will be safely effected.

It is a good sign, and a natural one too, when the uterus is felt contracting as the operator brings forth its contents ; but when it remains lax, or very open, it denotes that the patient is very weak, and will be in danger of fainting. To guard against this, as well as other evils,

evils, the abdomen must be immediately compressed, and proper linnen applied likewise to the os vaginæ, that an ingress of cold air may not suddenly ensue.

§. III. Delivery being now compleated, the woman must be re-freshed with cordial medicine, a glass of wine, a cup of caudle, or of broth, not very warm, lest the lochia become too flush.

How the mother is to be treated after delivery.

When she has rested about fifteen minutes, she must be dressed as quickly as possible, and the wet things taken all away.

This may seem to some persons too hasty, and so it is, in case the patient is faint, the uterine flux very copious, and the pulse low or tremulous.

But if the pulse is good, and the discharge moderate, the sooner she is laid dry and easy the better; for her linnen being wetted by the heat of the labour, &c. she will soon become chilly; liable to get cold; unwilling, and indeed more unable to move or to be moved, the longer she remains in this situation.

The clean apparel therefore being put on; and the bed prepared as directed in the little book already quoted (viz. directions to nurses, &c. chap. ii. §. 6. and 7.) She may lay herself on her right side, and being covered with such a quantity of cloaths as accustomed to when in health; she should continue in bed till the fifth day, unless the climate or the weather be extremely hot.

After the first week (no indisposition forbidding) she may rise every day, and sit at first about an hour or two, and then longer, as her strength recovers; which, after the twelfth day, will be assisted by lying now and then upon a bed or couch for an hour or so, and then sitting up again. During most of this time, but more especially the first six days of it, her perspiration should be constantly maintained in such a degree as just to keep the skin a little humid; and care must be taken that as little of the surface of her body is exposed to the cold

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air as possible : for even though tossing the arms about, and lying with them uncovered, or sitting up early in the bed, may seem but trifling errors, yet much mischief has been occasioned by them.

In short, the air in the patient's apartment must always be kept as temperate and pure as possible, and her quiet never interrupted with much company, nor with any sudden or violent emotions of the mind whatsoever, through the whole month.

Besides, it is necessary to observe, that in a few hours after delivery, the patient must endeavour to make water : for some women have the *spinctor vesicæ* so greatly affected with even a very natural birth, as not to be sensible when this is required ; and therefore, not helping themselves in a proper time, the bladder becomes so much distended by the urine, as not to be able to execute its office, till after it has been assisted by the catheter, in the manner as directed in Part II. Chap. III. §. III.

The aliments which are most suitable for the patient, during the first four or five days, are principally the following, namely, caudles, panadas, and broths of chicken, lean mutton, or beef, &c. unless she is of a lax or watery habit of body, or has a very particular aversion to liquid diet. If this be the case, and she is desirous of solid food, she may have it in moderation : but if she has not an appetite for it, or is feverish, or if she is of a strong or plethoric constitution, no meat should ever be eat before the fourth day ; and then but very sparingly till the milk fever is off, and the body sufficiently opened.

Whilst she is thirsty, she may drink freely of any sort of tea, or of barley water ; for these will not only help to maintain duly the humidity on the skin, but the fluidity of the milk, &c.

The medicines which are most commonly used at this time, are, *spermaceti*, *oleum amygdalinum dulce*, *tinctura thebaica*, *syrupus balsamicus*, *confectiones cardiaca & alkermes* ; *pulvis contrayervæ compositus*, *spiritus mindereri*, *aquæ castorei et pulegii*, &c.

Most

Most women being costive after delivery, require relief about the fourth day; and here, an enema, especially for the first time, answers very well. But if it is very disagreeable to the patient (as sometimes happens) then either of the following aperients, or a similar one, may be given directly, and repeated as occasion requires.

I R Pulveris jalapii grana duodecim,
Rhei grana septem,
Salis nitri semi-scrupulum,
Aquæ alexiteriæ simplicis fescunciam,
Tincturæ rhabarbari spirituosæ,
Syrupi simplicis, singulorum drachmas duas;
Misceantur, et fiat haustus mane sumendus.

Vel,

II R Pulveris rhei drachmas duas,
Electarii lenitivi uncias duas,
Olei amygdalini dulcis unciam unam,
Carui guttas decem,
Syrupi rofarum solutivi quantum sufficit;
Misceantur, et fiat electarium dequo capiat
quantitatem nucis moschatæ nocte manequē
donec alvus sat̄is solvatur.

If these medicines do not operate according to expectation, which not uncommonly happens, from an accumulation of indurated fæces lodged in the rectum; the difficulty then is best removed by glysters, though, for the most part, the following pills will answer the purpose.

III R Extracti cathartici

grana quinque et viginti ;

Fiant pilulæ quinque quarum capiat unam omni

bihorio donec alvus semel vel bis respondeat.

Though the breasts become so replete with the milk as to be very painful (especially when the infant is not permitted to suck ; a fashion truly not only unnatural, but very injurious) yet, recourse should not be had to repellents ; for if the milk retires on a sudden from the breasts, or if little or none of it hath been secured to replenish them, there is danger not only of a miliary fever ; but of the brain, or of the lungs, or indeed of the whole viscera's being injured. It is therefore best for the mother (even supposing her to be weakly) to suckle the child at least during the first month ; and then, if she determines to wean, she may do it with less danger to herself. But if either the disposition, or the badness of the nipples allows her not to comply with such a natural remedy, she may be greatly relieved by means of glasses, which are now contrived so well, that she may use them herself very conveniently, at least till the milk fever is subsided ; about which time, if not sooner, the tumefaction of the breasts most commonly abates.

Besides these artificial means of keeping the body open by eccoprotics, and of drawing off the milk by help of glasses ; the breasts, but not the nipples, may be covered wholly, at the same time, with emplastrum commune spread upon leather ; or they may be embrocated with lavender water, mixed with an equal part of fine olive oil, or oleum amygdalinum dulce ; in order to give a little brace to the skin, and to preserve by warmth, &c. the tenuity of the milk, so that such complaints may not ensue as are to be treated of in Part IV. Chap. VII.

§. IV. Having considered the method of conducting the mother through natural parturition, and the month of lying-in, I shall finish this chapter with a few directions concerning the infant ; this I hope will be the more excusable, as our utmost care is required in behalf of the latter, as well as of the former, not only during the birth, but for some time afterwards.

Directions
concerning
the child.

First then, let him be properly washed, as soon as convenient after the birth. For this purpose, there are two lotions in common use, either of which does very well. One is made of beer and butter ; and the other of wine and water, with a little brandy and oil ; or instead of the oil, some pomatum may be added.

When he is well cleaned and dried, he may be placed on his back, with a flannel band sixteen inches long and four broad, across beneath him ; and then let a compress of soft linnen, seven inches long and three broad, twice doubled, with a round hole in the center, about three inches from one end, be applied to the umbilicus in the following manner : pass the funis through the hole ; lay the shortest end of the compress upwards, along the abdomen, with the funis upon it ; reflect the longest end over the funis, and bring the ends of the band across over all ; then pin them equally, and moderately tight ; in doing this, there must be neither wrinkles nor hems, &c. to give the least uneasiness to the child. And moreover, let this be most carefully observed, viz. to apply the whole dress always very loose, and as smoothly as possible.

Notwithstanding it is near twenty years since some very useful rules, with respect to dress, &c. were communicated to the public by Dr. Cadogan, and favourably received by the most sensible part of it ; yet there is reason to fear, that many children, even at this time, are absolutely killed by the old and preposterous custom of tight apparel : for if you examine, you will find that the head is bound fast with what is called a biggin ; and made to incline unnaturally for-
wards

forwards, with what is called the long-stay; the cap is tied so tight below the chin, as to obstruct the circulation of the blood through the jugular vessels; the body swathed so very strictly, as to retard the natural motions of the thorax; and the roller applied close to the axillæ, and the arms pinned down, so that the reflux of the blood from the hands, &c. is obstructed! What is the consequence? Is it not commonly said that the infant died suddenly? Or if it survives, is not the report which is given you by the nurse very commonly as follows:

The child has fits or inward convulsions; it pines and cries often; it is now and then black in the face; and its hands, and sometimes the feet swell, and appear of a blackish colour. Nay, if she is honest, she perhaps will tell you, that to cure the fits she has given some juice of rue, a little brandy, or anniseed water, &c. in the victuals; and if the pining and crying have been taken to arise from the child's longing for something, a piece of fat pig may, in all probability, have been given also. Such circumstances as these too commonly occur; at least I have reason to say so; and moreover, that having (not without indignation) caused this pernicious dress to be either loosened or taken away, I have often had the pleasure to see the complaints removed, and consequently the child become easy before I left the room.

There is another error with respect to dress, which rather prevails at present, for it is a custom with many to cloath the body very thick, but allow neither stockings nor shoes, &c. even when the infant is carried abroad in the coldest weather. This method must make the child faint in hot weather, by over-heating its body; and, in the coldest, it cannot but check, if not entirely obstruct the circulation of the fluids in many of the capillary vessels of the extremities; whereby the natural increase or expansion of these vessels must be greatly retarded, instead of being properly cherished as they ought to be at this time.

As

As with most other habits, so with this, it is always best to keep as nearly as we can to the medium betwixt extremes.

Therefore, whilst the weather is warm, the child's body should be thinly cloathed; that is, never so thickly as to cause sweat. Nor is there any necessity of either stockings or shoes. But when the weather is cold, the body should be covered a little thicker on that account; and the extremities so much only, as to prevent the skins being discoloured with the coldness of the air.

A nurse ought to use both her arms alike; for if she carries the infant on one, as for instance, on the right more than upon the left, his ribs and spine may be distorted; nay, most probably his right shoulder will bulge out; and vice versa.

When the child can walk, he may have shoes to keep his feet from being hurt; but there is not so much need of stockings, seeing thin cloathing at this time, even during the coldest weather, is generally salutary.

Ablutions, with water every day from the birth, and immersions of the whole body after the second or third month, are excellent; but free country air (the purer the better) is absolutely necessary.

With respect to aliments, the milk of the mother is preferable to all, for the first six months at least; but if this cannot be had, the milk of a healthy woman should be used instead of it.

Though women of very different ages and constitutions, may sometimes make better nurses than expected; nevertheless, the following particulars are to be regarded, viz. An age not less than eighteen, nor more than thirty; a complexion fair, and constitution healthy; teeth perfect, appetite good, breasts full, nipples of a proper size, milk not above three months old; and an equable and cheerful disposition of mind, are endowments essential for a nurse. But red hair, foetid breath, or either a scrophulous or a scorbutic habit of body,

or the menſtrua, during the time of ſuckling, are all exceptionable.

Many people think that a child's puking after ſuckling denotes its thriving : ſome children may throw up a part of their aliments, and yet do very well ; but I cannot take the latter to have any dependency upon the former. I think that ſuch a regurgitation, may more reaſonably be ſuppoſed to proceed from the ſtomach's being overloaded ; and that if the child is permitted (or compelled, as too often is the caſe) to take more of this, or of any other aliment than can be properly digeſted, the chyle will become ſo much contaminated as to irritate, if not inflame the ſtomach and inteſtines ; ſo that a diarrhœa, or what is called the watery gripes ; nay, even death itſelf, may enſue.

For this reaſon, I would never have ſo much taken at once as to cauſe vomitings, or even any uneaſineſs at the ſtomach, if it poſſibly can be avoided.

The aliments, beſides the milk of the mother or that of a nurſe, which have ſeemed to me to agree beſt with children, are theſe following :

Take of new cows milk and oatmeal tea, or inſtead of the latter, barley water, each a quarter of a pint ; roll or fine bread (home baked the beſt) a ſufficient quantity to make it of a proper thickneſs.

Boil it a little, and then add of double refined ſugar enough to make it of an agreeable ſweetneſs.

Very fine flour may ſometimes be uſed inſtead of bread ; but then it muſt be boiled longer.

When the milk of the breaſt is not ſufficient for the child, or when he doth not ſuck at all, the above pap may be given as occaſion requires, taking care it be freſh ; for if it be warmed a ſecond

or

or a third time (the oftener the worfe) it becomes flat, unpleafant, and very foon fo acid as to endanger the infant.

Water pap, that is, fuch as is made of bread or biscuit, and water only, has been long in ufe ; and continues ftill in very high vogue amongst the vulgar. This pap feems not only infufficient for the child's nutrition, but the bread, efpecially what is made of bad wheat or flour, having allum mixed with it (fometimes in no fmall quantity, by the injudicious and fraudulent baker) foon becomes fo very acid and acrimonious, as to diforder the bowels moft violently ! Have we not too much reason to fear, that the death of many thoufands is occafioned by this compofition ? I am firmly of opinion that we have ; and therefore cannot but heartily wifh it may for ever be laid afide.

Befides the diet above recommended, when the child is about fix months old, he may with advantage be accuftomed once a day to the ufe of fome animal food ; as for inftance, two or three fpoonfuls of weak broth newly prepared ; or a little of any white meat well dreffed, bruifed, and divided into very fmall parts ; then mixed with the crumbs of bread, and moiftened or made foft with broth, tea or water, fo that the child may fwallow it with fafety.

With refpect to medicines, the mother's milk is generally the beft at firft. Sometimes, indeed, the meconium is fo vifcid, as to occafion great uneafinefs and pain, before the intefines are perfectly relieved. In this cafe, the following powder is ufually fuccefsful.

I R Magnesiæ albæ grana quatuor,
Pulveris rhei grana duo ;
Mifce, fiat pulvis, femel vel bis in feptimana
fumendus donec alvus fatis folvatur.

At any time when the intefines become foul, the fœces fmelling four or appearing green, the above powder may be given in fuch a
F f quantity

quantity as the age may require. If it does not agree with the constitution, manna, &c. may be given instead of it; and the remaining crudities may be corrected or absorbed by either the following mixture, or a similar one.

II R Oculorum cancrorum preparatorum

drachmam unam et dimidiam,

Aquæ fœniculi dulcis uncias tres

— nucis moschatae,

Syrupi simplicis,

Singulorum semiunciam;

Misceantur, et fiat mixtura cujus detur cochleare
ter quaterve in die, vel pro re nata.

When vitiated humours affect the stomach and intestines, so much as to threaten danger, Mr. Armstrong's method of giving the antimonial wine, being both safe and generally successful, may be used with the greatest propriety.

For more information, with respect to the management of children, the reader should peruse the works of those gentlemen who have wrote particularly on the subject; especially Dr. Cadogan's essay on the nursing of children; Mr. George Armstrong's essay on the diseases most fatal to infants; and a book, intituled, a comparative view of the state and faculties of man, with those of the animal world; the latter is said to have been written by an eminent professor of physic. However, be that as it may, there is so much said to the purpose in the first section of it, that I could wish not only every physical person, but every parent also, would read it.

C H A P. IV.

OF THE DELIVERY COMMONLY KNOWN BY THE NAME OF
PRETERNATURAL PARTURITION.

BY this denomination is meant every birth in which the feet come first, or whenever the child is to be turned so by art, as to be brought in that position.

Many centuries, even after the hint was first given, elapsed, before this method of delivery could prevail. But since Paræus's time, it hath been so fully explained by practical authors, as to take place universally.

In this chapter we shall comprehend not only every bad position that may require such method of delivery, but those of the natural kind also, which sometimes must be treated in the same manner; particularly when the hands present with the head; and in case of floodings, and of twins, &c.

The operation itself is generally the more difficult, the nearer the part which presents is to the child's vertex, and vice versa (excepting when one or both hands present with the head, or a little before it, as will be taken notice of in its proper place); we therefore shall begin with the easiest; namely, when the feet offer; and from thence proceed to the more difficult.

First then, when either a hand or foot presents, it not unusually descends into the vagina before the amnion-tumor breaks. When both hands or both feet present, or one of each together, they seldom come down so early, but remain within the os uteri for some time after it is considerably opened, and before the liquor amnii is begun to flow: but whether this happens or not, it must be the operator's

When one or both feet present.

first care to know what part offers to the birth. If he cannot distinguish a foot from a hand, he had better not proceed : but as it can scarce be imagined that he can mistake in this point, he has little more to do, when one or both feet present, than to wait, and take care that the patient be supplied with such necessaries as directed in Chap. III. §. I. or Chap. VI. §. I. until the orifices open naturally ; and the leg or legs advance without the labia. During this time however, it will be necessary for the patient to empty the vesica urinaria ; and if the rectum is not relieved, an enema should be given ; after which she may lie on her side in the position as for natural delivery, and let the labour go on.

In some cases, where only one leg has come down, and the hips have remained so long at the upper strait of the pelvis, as to make me suspect that the woman would undergo a very laborious labour, if left alone to nature : I have, as soon as the orifices were open enough, passed my hand, and brought down the other leg and thigh. But, in other cases of this kind, I have found the hips come forth, and the body follow, till the limbs were perfectly disengaged, without any hurt to mother or child. So that I now prefer this method to the other ; and am still more convinced of its propriety, by the opinion of a practitioner much more experienced than I am. But to return ; one or both legs being without the labia, if the toes are towards the mother's nates, the pains forcing, the pelvis large, the child small, or even of a middling size, the delivery will be sometimes effected by nature almost alone, so that very little help need be offered.

How to bring
the hips a-
long.

But when the circumstances are not so favourable, the difficulty of bringing the child along, as well as of saving it in the birth, is often so great as to employ the skill of the most expert operator. Therefore, when he finds that the hips do not come forth so readily as might be expected by the force of the pains, he may place himself

COR-

conveniently in a chair at the bedside, envelop the legs of the infant with soft linnen, and lay hold of them above it; for, by this method, his hand will not be so apt to slip. He may now extract during the pains, and wait intervals, that the orifices may have time to be gradually dilated. For by this means, the nates will advance to the os vaginæ; and when they are a little without it, if the toes point not backwards, he must place the linnen about the thighs, take hold of them above it with both hands, raise the body a little in the pelvis, turn it gently round till its anterior side is exactly towards the mother's sacrum; or with a quarter turn more (as Dr. Smellie expresses it); which afterwards being reversed, he may then conclude, that the widest parts of the shoulders will point directly to those of the superior part of the pelvis; and that the face, having followed the above twist, must be towards the ilium, or near to the angle of the sacrum; so that the birth cannot be obstructed now by the chin's hitching on the brim of the pubes.

When to place the body right in the passage.

Having extracted again till the ilia are entirely without the labia pudendi, they must be enveloped with the linnen, and laid hold of by placing a hand on each of them, with the thumbs towards the sacrum, and the points of the fingers towards the pubes; sometimes they may be placed the reverse, that is, with the thumbs towards the pubes, &c. then the body must be drawn forth gently till it halts, which will commonly happen when the shoulders are either at, or within the os vaginæ. This last advancement must be mechanically performed, that is, not in a straight line, but by moving the part which he holds a little from side to side; yet, keeping the spine straight, and but gently extended, lest it be over-stretched. His hold also must be continued on the hips, for if it be moved higher, it will not only slip, but probably the child may be injured by the compressure, whether it be made on the abdomen or thorax.

The

The funis now must be often felt, to know if the pulsations of the arteries stand good. When they become so feeble as hardly to be felt, he must not depend much upon the help of pains, but hasten the delivery; desiring the patient to force down as much as she can, whilst he extracts, though still with caution, lest the spine of the back, &c. be hurt. But if the funis happens to lie where the compression, betwixt the walls of the pelvis and the child, is not so great as to stop the circulation, he may then wait for the assistance of pains, by the aid of which, the shoulders will sometimes come forth.

How to bring
the arms
down.

If they do not readily, he must pass his right hand along the hind part of the right scapula, till a finger or two gets over the top of it; then move it gently from the pubes towards the posterior side of the pelvis; and bring it a little without the orifice, whilst the body is extended a little to the left side, with his left hand; the fingers now must be slid from the right shoulder along the anterior side of the arm, nearly as far as the elbow; bringing the latter, as he passes along, towards the hollow of the sacrum, and then cautiously across the neck, center and right side of the breast, till it comes entirely forth, when it will be readily followed by the cubit.

The body next being gently extended, must be moved towards the operator's right hand, whilst with his left hand he brings down the left shoulder, and then the arm, with the elbow, across the neck, center and left side of the breast, till it comes out from between that part and the mother's perinæum, in an opposite direction to the former. By this method, both the arms and the perinæum will be saved from injury.

Now he must place a hand on each side of the neck, and extend it gently whilst a pain assists, then rest, and repeat it as soon as another approaches, or sooner, if the pulsation of the arteries in the funis is very weak, and the pains are not frequent. By this help only, the head will sometimes descend into the pelvis; and when so low that

the chin comes against the perinæum, the left hand being placed on the breast, with the tops of the fingers to the anterior part of the neck, and the right hand on its posterior part, just above the shoulders; the scapulæ then must be moved towards the pubes, the neck extended, and the head brought forth with a semicircular turn from the under edge of the symphyfes forwards.

But when the pelvis is narrow, or what is the same in effect, the head very large, or when the orifices contract very suddenly about the neck, or the chin happens to rest upon the brim of the pelvis, the child is then in danger of being lost. Nay, it often cannot survive the birth (especially if, previous to all this, its position hath required it to have been turned in the uterus; as will be taught hereafter) even although the endeavours of the most expert in the art are used to save it. For supposing the head corresponds rightly to the pelvis, that is, with the face to one ilium, and the pains are able to force it down, yet the funis is often so greatly compressed as to stop the circulation entirely, and consequently death must ensue.

On the other hand, if he extracts precipitately, the neck will be strained so much as to produce evil that way.

Therefore, as soon as it is known that the head is fixed, he must pass his hand along the anterior part of the neck in quest of the chin, which commonly will be found resting on the brim of the pubes. But whether so or not, he must place one or two fingers in the mouth, and turn the face towards one of the ilia; then applying the other hand on the hind part of the neck, just above the shoulders, where his hold will fix. This being done, he must now extract with considerable force (yet not so much as to injure the lower jaw) observing at the same time, not only to pull in a direct line, at least as nearly as he can, towards the apex of the coccyx, but to move the hand first to and fro between the lateral parts of the pelvis, that is, from ilium to ilium, next between pubes and sacrum, and then press it backwards into the hollow of the latter.

By

By these directions of action, the thickest part of the head will come through the upper strait of the pelvis, upon which a finger or two being still in the mouth, the face must be turned first backwards into the hollow of the sacrum, and then downwards to the bottom of the pelvis, whilst the neck is extended at the same time forwards with the other hand. By the last movements, the chin will probably be brought to the posterior side of the os vaginæ, and the nape of the neck to the under edge of the pubes.

But whether this happens or not, the movements must be continued now, first between pubes and perinæum, and then entirely forwards, and upwards towards the mons veneris. The chin being come without the posterior side of the os vaginæ, the fingers then must be taken out of the mouth, and employed in slipping that part of the orifice and the perinæum back over the face; whilst, at the same time, the neck is grasped with the other hand, and pulled forwards and upwards, as above directed, by which means the head will come forth. In all these endeavours, he must wait for pains as much as the nature of the case will permit; for if the efforts of the patient coincide with those of the operator, more than double advantage will be gained.

The child being now brought forth, must be immediately laid easy, the air permitted to come to its nose and mouth; the funis must be disengaged (if entangled); the mother must be covered close; and then the child must have time allowed to recover from the fatigue of the birth, as for instance, about fifteen minutes, or till the circulation in the vessels of the funis revives. For in such cases, although it not uncommonly may seem entirely lifeless, yet by waiting six or eight minutes, sometimes more, rubbing it now and then with warm cloaths, applying the steams of brandy or warm vinegar, &c. to the nose, and permitting the air to come at the face; the umbilical arteries will begin to pulsate, first feebly, then stronger and stronger; soon after which, the child will breath and gradually recover.

When

When it has fetched a few breaths, the funis must be tied and divided; then the child being given to an assistant, the secundines must be extracted. If they come not forth in the natural way, they must be brought by the hand, as directed in Chap. III. §. IV.

§. II. When the nates offer, it is sometimes difficult to distinguish them from the head, especially whilst they are high in the pelvis, the amnion-tumor preceding them, and one descending a little before the other: but after the membranes are broke, and the nates are advanced near the middle of the pelvis, they are then known by the following marks, namely, they feel smooth and fleshy; their form is not so globular as that of the head; and when they are pressed hard by the point of the finger, they are found to be very firm, and not so equal in their convexities as those of the bones of the scull. When they present together, a sulcus may be felt running across the apex of that part which presents; and as they descend lower, the external parts of generation become so much tumified, by the compression above, as to project considerably from this sulcus: nay, if it is a male, the scrotum is often swelled very much, and looks livid for some days after the birth; but recovers its natural state in about a week.

How to assist
when the
nates present.

Besides the above symptoms, the child being compressed in this double position, as soon as the membranes break, the meconium issues forth, sometimes in very large quantities.

When the pelvis is of an ordinary size and form, the natural efforts will commonly bring forth the child in this position, without any remarkable difficulty, unless it be very large, or the orifices unusually rigid: if so, the birth is always extremely laborious, yet will be effected by the woman's endeavours. In some cases I have brought down the feet; but in most cases of this kind which have occurred to me, the nates have been so low in the pelvis before I could be certain it was them, that I have thought it best to let the birth go on in its

own way, till the legs were fairly without the os vaginæ. By allowing it to proceed thus, I have never known any hurt befall mother or child. Nevertheless, I own, that I had still a notion of passing up the hand to bring down the feet, provided the orifices were open enough to admit of it, and the nates distinguished before they were descended low into the pelvis, till I talked with Dr. Hunter upon this subject. He thinks, “ That it is much safer
“ both for the mother and child, to let the child come double, than
“ to bring down the feet. All the disadvantage accruing to the
“ mother from such practice, is only a longer and harder labour;
“ from which, however, she will recover as well as if it had been
“ more easy; and she is secured against all the misfortunes that might
“ happen from unnatural violence of introducing a hand and bringing down the feet, an operation which cannot always be done
“ with perfect safety.

“ With regard to the child, he thinks this method the only security of saving it. In this, as well as in a natural situation, the
“ getting the head of the child to pass, is the great difficulty. And
“ in a natural case, when there is real difficulty, the passage of the
“ head, which comes into the world first, may safely be made the
“ work of many hours; so that the head gradually lengthens, and
“ grows smaller in the same proportion.

“ But in the other case, the head, the part of great difficulty, comes
“ into the world last: and when all but the head is born, the child is
“ so circumstanced with respect to the navel-string, that if it remains any time in that position, it will certainly be lost. Upon
“ this account, the operator is under a necessity of finishing that
“ part of the delivery with some dispatch: and in order to facilitate
“ this last part, it is better that all the parts should have been previously well opened by natural pains.”

This

This being considered, and the child permitted to come in this position, till the feet are without the os vaginæ, its body must then be placed right in the passage (if it is not so already) and afterwards the delivery may be compleated as directed in the preceding section.

§. III. Having now described how the child may come naturally, or be conducted artificially through the pelvis this way, I shall next consider the means which are to be used when the child presents in such a position as to require it to be turned in the uterus, before it can be brought through the pelvis, in the manner as here described.

First then, whenever the hand is to be passed into the cavity of the uterus, the greatest care must be taken to have the nails cut very How to pass the hand into the uterus. short and smooth; the whole cubit must be properly anointed; and the fingers gathered into a conical form, the thumb lying obliquely across the palm of the hand, with its point upon the first joint of the ring finger, reckoning downwards. In this form, the hand must be glided gently along the vagina, till the ends of the fingers reach the os uteri, into which, the first three must be insinuated together. If it is not opened enough to admit them with facility, he must not proceed, except in cases of extreme danger; but wait till it is softened, and opened so well by nature as to allow them to enter without much difficulty. When they are received, the thumb must be insinuated next, and then the little finger: after this, by opening them now and then, the whole hand will soon be admitted.

As it is passed up, it must be directed forwards, in course of the curvature of the pelvis; and as it ascends into the cavity of the uterus, he may observe the width of the superior strait, as shall be directed in Chap. VIII. for if this is less than the third dimension, there will be great difficulty in bringing the head along, unless it be very small indeed.

I had once a case of this kind, in which, having measured the superior strait of the pelvis with my hand, and the child's head afterwards from ear to ear, I found the dimensions of the former to be about half an inch less than the latter. This, perhaps, may appear a paradox; but whoever considers the compressibility of the head (as hath been observed in Part I. Chap. IV.) will readily comprehend the possibility. But to return: whether this is done or not, when he has distinguished the part which presents, and finds it best to proceed, he must pass by this part of the child, on any side where there is most room; and then advance in search of the feet.

In doing this, he must observe that the palm of the hand, and the points of his fingers are kept close to the child; always taking care to bear as little as possible against the woman; for by much pressure, he will not only cause pain, but perhaps a laceration of the uterus itself! A woeful instance of which I once saw, as hath been observed in Part I. Chap. V. §. VIII. It must also be carefully observed, that in passing the hand through the orifices, and along the uterus, some pains may be excited, attended with strong contractions; during which, the operator must stop till all is quiet; for, by acting now, his strength will be wasted, and his endeavours rendered useless, if not worse. But when the uterine spasms are off, he may then proceed; for in those intervals, the difficulty of either advancing or turning the child is seldom very great, unless the patient's constitution is robust indeed, and the liquor amnii has long been evacuated*.

In the following cases, the position of the patient must be supposed to be the same as that in Chap. III. §. I. with only this difference, that the nates must be close to the side of the bed†.

* I have the pleasure to say, that this practice was approved of by Doctor Hunter, my late valuable friend, who favoured me with his opinion on several parts of the first Edition.

† I find that professor Hamilton, in his out-lines of Midwifery published last year, recommends the placing of the patient on her elbows and knees, which position may help to counteract the contraction of the uterus, and the abdominal muscles also, during the operation. But, as I have not since, had any cases fall under my care to require it, I must defer saying any more at present concerning it.

Though

Though it must be allowed, that when she lies on her back, the operator may pass either of his hands with equal facility through the pelvis: nevertheless, I must confess, that in some cases where the contraction of the uterus has been very great, or the child's position very untoward, I have not been able to get at the feet till she was turned on her side. For which reason, as well as to avoid the terrifying of the patient, I prefer the side position.

This being understood, the operator must observe to pass his left hand through the pelvis, and if the feet cannot be found by that, he may then use the right; by which, for the most part, he will gain them. But if he attempts to pass the right hand first, he will probably come directly against the anterior part of the cervix uteri, especially if the head presents. A case of this kind having once happened to me, I shall relate it here as a caution to the student.

A patient being seized with such a degree of flooding as to require an immediate delivery, I had her placed on her left side; the os uteri was dilated above the breadth of a crown piece, and the child's head bearing down upon it; so that not suspecting any mistake in insinuating my hand, I passed the right one into the vagina, where it came directly against the head, which felt so round and smooth, as not to make me think the anterior part of the cervix uteri was still extended over it, till I endeavoured to raise it, and not finding it to ascend as I expected, I then searched, and found the orifice so far backwards as not to allow this hand to be passed conveniently through it; for which reason, having withdrawn this hand, I passed the left, and finished the delivery. I must confess I was very uneasy at first, fearing I had hurt the cervix uteri, or the neck of the bladder, &c. by pressing against them in trying to raise the head. The woman, however, recovered in the ordinary time, and is very well. But to return: the operator may either stoop, sit, or kneel, as he finds it most convenient, whilst he is engaged in the operation.

Now

How to turn
the child in
the uterus.

Now, as to the method of turning, I shall endeavour to explain this by beginning with such presentations as are next to that of the nates. But I must here acknowledge, that I do not remember to have met with the first and second, namely, with either the back, or fore part of the body presenting. Nevertheless, as such cases have been described by authors, and as I cannot take upon me to prove that they do not happen, though it is much doubted by some of much experience; yet I will describe the method which to me seemeth best (in case they should happen) and of which I can better judge from the many very intricate positions I have met with.

When the
back presents.

§. IV. First then, when the back presents, it may be known by the Vertebral spine, ilia, and scapulæ; it matters not which part of it is to the birth; the method of assisting is the same, as for instance:

The operator must pass his hand along the child's sacrum, round the nates, and up the posterior side of the thighs to the feet, which in this case may commonly be found with little trouble, unless they are extended towards the face or ears; if they are, he must proceed farther, or move the body circularly till they come within reach; this being done, he may bring them down, and finish the delivery as in §. I.

When the
fore part of
the body pre-
sents.

§. V. When the anterior part of the body presents, the abdomen may be distinguished by its softness, and by the funis; the breast by the firmness of the sternum, the sulcus running along its middle, and the ribs spreading out from each side. The neck (though turned so much back that the hind part of the head rests upon the shoulders) may be known by its sudden diminution from the size of the latter, as well as by the proximity and hardness of the chin. Though this position is the worst that can happen to the child, especially if it is bended backwards till the occiput and heels come nearly together; the spine being thereby not only most unnaturally strained, but the viscera of

of the whole trunk also; yet, whatever part presents it is the same, the turning, as I apprehend, cannot be very difficult; and may be done as follows: let the hand be passed from the abdomen along the thighs till it arrives at the knees, the fingers then being passed round the hams, the legs must be gently brought down towards the pelvis, whilst the head and upper part of the body is moved upwards towards the fundus uteri, in a circular manner, round to the place where the feet came from. If both legs cannot be fetched at the same time, he must take hold of them one by one, and having got them down into the pelvis, compleat the delivery as directed in §. I.

§. VI. When either of the fides present, they may be known by the edges of the scapulæ, the ribs, and the hips. From the anterior edge of the latter, the operator must pass his hand along the fore part of the thighs to the knees, lay hold of the hams, bring down the legs with a gentle twist forwards, every now and then letting go the hold, if difficulty arises from the contraction of the uterus, and endeavour to untwist the body, and to raise the head and shoulders upwards, moving the body round at the same time; by which means, if both the legs come down, it is very well; he must proceed, and finish the delivery as in §. I.

When either
of the fides
present.

But if both cannot be come at, he must take hold of the one belonging, not to the side which presents, but to the other, and bring it across the anterior part of the child's body downwards into the pelvis, though with much caution, lest the hip-joint should happen to be injured. When the leg is come into the vagina, if the toes are not towards the mother's sacrum, he may pass his hand again and endeavour to ease or untwist the body of the child, and to place its anterior side towards the mother's posterior; whereby the hips may come to correspond with the widest part of the pelvis. It must be owned, however, that this amendment may not always be practicable.

If

If, in the attempt, he comes at the other leg, and can bring it down, he is lucky. But if that cannot be done, he must withdraw his hand, place soft linnen around the leg which is down ; and having taken hold of it, wait for the assistance of pains, and extract gently at those times, turning it a little round with the toes backwards, that the body may present as favourably as possible to the passage. This twist must be made with very little force, and with the utmost caution, lest hurt ensue. The ilia having, by this assistance and that of nature, descended through the pelvis, and the nates being so far advanced without the os vaginæ, that he can bend a finger or two about the groin of the inflected limb, he may then extract, and turn the body right at the same time, if it is not so already, till the foot comes forth ; upon which, both legs being laid hold of, the delivery may be compleated as in §. I.

When one or
both hands
present with
the head.

§. VII. When a hand presents with the head, the child will sometimes come along in this position, without any hurt to itself or to the mother ; an instance of which I lately met with.

In this case, when the head had descended below the middle of the pelvis, I felt the fingers a little before it ; and when it came without the labia, the fingers of the other hand laid close to the ear of that side to which they belonged. Though this child was of a middling size, yet the labour was not very difficult.

In 1755, being called to a patient who had been in labour a night and part of a day ; and finding the os uteri well opened, and the head with a hand before it, presenting a little within the brim of the pelvis, I pushed the hand up with mine, and held it above the brim, till a pain coming on, the head filled up the pelvis so well as to leave the hand behind ; this being done, I desisted ; in less than ten minutes the woman was delivered, and both she and child did very well.

Notwith-

Notwithstanding this, cases have happened where I have not been able to keep the hand up, especially when it has once been pretty low in the pelvis; therefore, whenever one presents, or even both, provided they lie along the sides of the head, and descend not far before it, I think it is best to let them come in this position; and I am joined by others in the same opinion.

§. VIII. But when one or both hands precede the head so far as to prevent its passing through the upper strait of the pelvis; when a hand comes down with any other part except the head, or when it comes by itself; an attempt must be made to turn the child as soon as the orifices will admit the operator's hand, as directed in §. III.

When the arm is prolapsed and the shoulder descended into the brim of the pelvis.

When the liquor amnii hath been long evacuated, the arm quite prolapsed, the scapula forced into the brim of the pelvis, by a violent contraction of the uterus above, the delivery is always very difficult. Therefore, before it is attempted, the position of the breast should be known, that the operator may both pass his hand along this part, and bring the feet down over it; this direction being the most natural way of turning the child. He may, therefore, take notice that the inside of the thumb, and palm of the presenting hand, point (most commonly) to that side where the breast is to be found.

When the orifices will allow of the operation, he must pass his hand along the anterior side of the prolapsed arm, into the cavity of the uterus, with the palm towards the breast and abdomen of the child; observing, as he advanceth, to slide it a little from side to side. As he passeth it up through the pelvis, he needs not raise the arm of the child, especially if it is low; nor is he to raise the head and shoulders till he brings down the feet.

Without this precaution, the upper part of the uterus may be hurt by forcing the feet or knees, &c. of the child against it.

H h

But

But as those parts are brought down, making thereby room above, the head and shoulders will go up, and the arm and hand also will consequently follow, without either hurting the uterus or obstructing the birth.

This being considered, he must glide his hand along as above directed, till it gets to the feet; but if these cannot be readily come at, he may take hold of the hams; then bring the legs gradually down, either together or singly (preferring that which belongs not to the same side of the prolapsed arm) the first across the other, taking as much care as he can that the foot does not press hard against the uterus as it is brought round. But should this be found very difficult, either by the uterine contraction, or the intricate position of the child's body, he must advance higher (though the task may be great) till he can insinuate his fingers between their soles and the uterus; then having seized them, he must bring them carefully round till they present to the pelvis. The legs next being laid hold of, and brought low, the body must be turned by alternately pulling down the feet, then raising the head and scapula a little upwards, and round at the same time. The body at first may seem to be immovable; yet, by these means, the thighs, and then the nates, will arrive in the pelvis, perhaps sooner than expected. After this, the delivery is to be finished as in §. I.

When the
head presents
wrong.

§. IX. When the head halts on the brim of the pelvis very long, or enters it in a bad position, it is sometimes advisable, (as will be mentioned in the succeeding chapters) to deliver by turning, but always so when either the occiput or an ear presents; (the latter I believe seldom happens). If, in these cases, the liquor amnii has been long evacuated, the feet at the fundus, and the uterus contracted strongly, the delivery will be obtained with great labour.

It

It is necessary therefore to begin deliberately; the hand must be passed through the pelvis, as in §. III. and along the anterior side of the child, as in §. VIII. till, if practicable, it gets to the feet. I say, if practicable, for sometimes the uterus is contracted so closely about the child, that an operator (allowing him to be strong) may exert his utmost efforts, and yet not be able to gain them. Nay, sometimes he must be content with a ham, and often with a foot only.

Having come at one foot (or both if he can) he must hold it between his fingers, and bring it round towards the os uteri; then proceed for the other, and bring that down. Although this point may be gained, yet it sometimes happens, from the untoward position of the child, the violent contraction of the uterus, and slipperiness of the legs and feet, that the operator finds the utmost difficulty in bringing them down into the pelvis. Nay, I must confess, that in some cases I have not been able to get them through the os uteri, till I applied a fillet on one ankle.

Though I would not encourage the use of instruments when hands can do; yet, on such occasions, I hope it will be allowed, that it is better to assist with something of this kind, than to suffer the mother and child to be lost. The fillet which I have used for this purpose, is that which shall be taken notice of in Chap. VIII. §. IX. and may be applied in the following manner.

The noose being passed through the hole B of the embryulus, the operator must place it about the fingers of his hand, and hold it there by the top of the thumb. He must now pass the hand, thus armed, and the crotched end B of the embryulus, along with it up to the feet, and lay hold of one of them, for he will seldom or never be able to fix the noose upon both. When he has taken hold of the foot with his hand, and placed the ring B near the middle of the leg, he must hold this also with the fingers, then with the other hand pull the outer end of the fillet; by which extension, the noose will be ready to

slip off his hand round the ankle of the child; and this movement will be effected by shoving the fillet by the ends of the thumb and fingers over the foot, whilst with his other hand he pulls the external end.

When the noose is placed upon the ankle, or rather above it; the ring B of the embryulcus being now as high, the outer end must be drawn tight, and rolled about the swivel A C D, whereby the fillet will be sufficiently fixed; this being done, he must keep hold of the handle A C D, with one hand, and extract; whilst with the other he endeavours to turn the body round, and bring down the other leg, if that can be come at. By these means, the child will be brought into the passage; and then the delivery may be finished as directed in §. I. with only this difference, viz. that if both legs cannot be got down, he may bring the child along in that position, taking care that the hip-joint of the limb, which is down, be not hurt in conducting the buttocks through the pelvis.

When the funis presents.

§. X. When the funis umbilicalis falls down, the child is always in danger of being lost, especially if either the head or the nates come along with it.

For the pelvis being by these filled, the vessels of the funis will be compressed, and consequently the circulation must soon cease, viz. in about fifteen or twenty minutes; so that in less than an hour the child commonly dies.

But when any other part of the body presents along with it, or when it comes into the pelvis by itself, the child is not then in such immediate danger.

When attempts may be made to put up the funis.

If the operator happens to find it beginning to push down just as the liquor amnii breaks forth, and the head is entering the pelvis, he may pass up a finger or two to keep it above the brim, till a pain forces in the head. But it must be owned, that such an opportunity will

will but seldom offer ; for when the waters break, which in this case are commonly copious, a duplicature of the funis comes soon down, and sometimes protrudes quickly through the os vaginæ.

In this case, if the prolapsion of the funis is on one side of the pelvis, as for instance, towards Z ; the pains frequent and forcing, the orifices soft and yielding, and the head advancing so sensibly as to give hopes of a speedy delivery, especially if the woman is of a good size, and has born several children ; I think the birth may be allowed to proceed in its own way ; for if it happens to be very speedy, the compressure on the funis will be so short, that there seems to be a chance of the child's surviving it, and of doing well afterwards : in this opinion I am joined by others.

When the birth may be allowed to proceed in its own way. Plate I.

But when the pulsation of the arteries in the funis grows very feeble, and the other symptoms convince him that a speedy delivery cannot be expected from nature ; then, whether the funis presents with the head, with any other part, or by itself, it matters not, he must pass his hand as soon as the orifices will permit, and deliver by turning. For by this method, if the child is not already dead, or so very weak as not to survive the birth, it may be saved ; to illustrate which, I shall only trouble the reader with the following case.

When the child is to be turned.

In February 1767, I was called to a patient who had bespoke my attendance ; she was of a very small size, and rather weakly, but had born several children. When I saw her, the labour was begun ; the pains were pretty quick and forcing, the os uteri was opened to about the breadth of half a crown, the amnion tumor protruded through it, and the child's head bore down upon it. Finding the appearances so favourable, I waited above an hour ; during which time, the pains were very regular, the amnion tumor became very large, and descended nearly to the os vaginæ, the os uteri was wider than the breadth of a crown piece, but the head remained still at the brim. Soon after this, the membranes broke, a large quantity of the liquor amnii flowed ;

and

and presently, a pretty large duplicature of the funis prolapsed before the head : I endeavoured to slide it up between the head and brim ; but finding this would require more force than I durst apply, without either bruising the vessels of the funis, or altering the position of the head, which being a very natural one, I desisted. The pulsation in the funis was very strong ; but the pains began soon to slacken. Now I considered seriously with myself whether I should wait the event of nature, or deliver by turning. I determined to let the labour take its course whilst the pulsation of the umbilical arteries remained good. Therefore, having waited about an hour, and finding that the pulse in the funis became so feeble as scarcely to be felt, the vertex not lower than the middle of the pelvis, and the pains not so strong, nor frequent as before, I slid my hand along the head, which was raised out of the pelvis to make way for it, with less difficulty than I expected ; then passed on, laid hold of the feet, turned, and brought the child with facility : but the placenta adhered so firmly, as to oblige me to assist in the way directed in Chap. III. §. II. The child remained weak for a minute or two, and then revived. The mother recovered health remarkably soon ; and at this time, namely, Dec. 5th 1767, both she and the infant are in perfect health. But to return ; if, when he is called, the head is in the pelvis, and the pulsation in the funis not to be felt, he may then wait, and let nature do the work if she can : when she fails, by the time that the head is descended very low in the pelvis, he may then assist either by the forceps or embryulcus, according to the directions that will be given in Chap. VII. and VIII.

How to act
when a leg
is entangled
by the funis.

Lastly, I must observe, that in both this, and in each of the preceding cases, the operator may sometimes be a little incommoded by meeting the funis in his way, both as he passeth up his hand, and as he bringeth down the feet.

As he ascends, he need not pay much regard to it ; but when he brings the feet down, he must take care that it does not entangle the

legs;

legs ; for if it doth, the remaining part will then be so short, that as the body is brought through the pelvis, the funis must either break, or the placenta will be torn precipitately from the uterus, the consequences of which may be dangerous. So soon, therefore, as he finds an entanglement, he must pass the funis from between the legs, over a foot, that they may be entirely disengaged.

§. XI. Left what hath been observed in Part II. Chap. X. concerning those floodings and convulsions that are to be assisted by the hand, should seem not sufficiently clear to some, I shall here farther observe, that I do not mean the man-midwife should attempt the operation until he is truly convinced of its being absolutely required.

How to act
in case of
floodings.

With respect to floodings, he must be strictly attentive to the state of the pulse, and strength of the patient; some women bear a considerable loss of blood for several hours, sometimes near a day and night; after which, the hæmorrhage lessens, not uncommonly goes off; returns again in a day or two (if labour does not come on before) though seldom so flush, especially when the child grows very weak or dies; the discharge then is pale, sometimes dark coloured and a little fœtid, the pains come on, some livid clots are expelled, the orifices open, the birth is effected in the natural way, and the mother survives.

But when fresh coloured blood pours fast away, as it were in a continued stream, the patient consequently becoming faint, and the pulse sinking and fluttering, he must then be on his guard! There is no time to be lost, especially if this happens at any time after the seventh month; the nearer (as observed before) to the full reckoning, the more dangerous. These things being considered duly, he may perform the operation, which he will find to be an easy one, except in some cases where the os uteri happens to be rigid.

Previous to it, a long napkin folded longitudinally, must be laid across under the patient. Having passed the hand then through the pelvis, as in §. III. and up between the uterus and chorion till it arrives at the child, the membranes must be penetrated by the tops of his fingers, and followed by the hand as soon as possible, to prevent the escape of the liquor amnii. Some membranes are so extremely tough, as to cause difficulty in making the opening, yet this may be effected by pushing a finger or two towards the cavities formed between the extremities of the child and its body, either about its groins or arm pits. The hand having now passed through the membranes into what we may call the cavity of the ovum, he must lay hold of the feet, which in this case are found very readily, and the child commonly as easily turned into any direction, as if it lay in a globe of glass almost filled with water.

The child now being brought by the feet through the membranes, and down till it fills the pelvis, he must then halt a few minutes, not only to prevent the sudden emission of the liquor amnii, but to allow time for the uterus and parietes of the abdomen to contract gradually, and as equally as their different constructions will admit of: because, in some women, even after a copious hæmorrhage, the uterus contracts so quickly and powerfully, as to cause the liquor amnii to rush forth with an impetuous force.

In others, especially those whose constitutions are much debilitated, it remains lax and open for awhile; in both which cases, if it be hastily emptied, there will be danger of the patient's falling into faintings, cold shiverings, and even of losing her life.

These events, as I humbly conceive, proceed not only from the loss of blood, but from other causes also; as for instance, the fluids now being diminished, the natural equilibrium between them and the solids will be altered, and the uterus being quickly emptied (whether the sudden contraction took place or not) the pressure on the viscera
of

of the abdomen will be taken off; hence, a greater quantity of blood will flow into the vessels of those flaccid parts, than can be spared from the current mass, particularly from that part of it which circulates through the brain; and consequently the nerves will not be duly supported in performing their vital functions. And this portion of blood, which has so hastily rushed into the abdominal viscera, not being by the veins of those parts (now enfeebled from the want of the former pressure, and the natural power of the nerves) returned to the heart in the ordinary or stated time; the heart, therefore, must act irregularly as well as weakly, so that if the veins recover not speedily a force sufficient to supply it with blood, in order to be sent to the extreme parts of the body, especially the head; not only faintings and rigours, but death must ensue.

Now, to guard against these evils, as soon as the body of the child is brought into the pelvis, an assistant must bring one end of the napkin round the abdomen, then lap it over the other, and pin it as tight as the operator thinks necessary. The assistant must also compress the whole abdomen, and tighten the napkin more and more, whilst the operator brings the contents of the uterus gradually forth, as directed in §. II. After this, the napkin must be pinned tight, and the patient kept perfectly quiet for several hours before she is removed.

When the placenta adheres to the cervix uteri, so low as to extend over the os tincæ, it presents first in the birth; and will become detached from the cervix as the orifice is dilated; consequently a flooding must ensue, and continue in proportion to the extent of the separation, the plethora of the mother, the largeness of the uterine orifices at this place, and the healthiness of the child, &c.

When the placenta presents before the child.

If it lies so much to one side, as at the beginning of the labour to cover only the os tincæ, the mother (but I believe very seldom the child) may be saved by the help of nature, with little or no incon-

OF PRETERNATURAL PARTURITION.

venience. An instance of which, occurred to me in May 1767; I shall here relate it.

When I came, I found the head of the child close to the os vaginæ, preceded by the membranes, distended with the liquor amnii, and a part of the placenta extending from the pubes, mostly from one side of the symphysis, before part of the head. She had been in labour about three hours; during which time, though the os uteri had been gradually dilating, and the head advancing along the pelvis, yet there had not ensued any considerable loss of blood, for there was not a cloth wet: but whilst the head came through the os vaginæ, the discharge was so copious as to wet three, notwithstanding the time was but very short; for having broken the membranes close to the edge of the placenta, which was now not far from the center of the orifice, the liquor amnii flowed, and by the help of three or four pains the child came forth, immediately attended by the secundines.

The child was but of a small size; and, judging from circumstances, had probably died about the beginning of the labour.

As the progress of this birth was not disturbed by art, I think it appears, that a part of the placenta had adhered over the os uteri during the time of pregnancy. But to return:

When a considerable part of the placenta covers the orifice, (and the more the orifice is covered, the worse) the mother as well as the child must be subjected to great danger, unless the latter hath been dead for some time; in which case (as I apprehend) there will less blood circulate through the uterus, than when the child is alive; and the orifices of the uterine vessels being now disposed to contract also, the hæmorrhage will consequently be less.

To assist properly in such cases, the strength of the patient, the degree of the flooding, and the progress of the birth, must be duly attended to. If the pulse is not very small and quick, the strength not bad, the flooding not violent (which may be guessed by the few

cloths that are wet) the pains pretty regular and forcing, the orifices opening, and the child's head advancing, whether the placenta presents obliquely or quite transversely, the operator may wait, and let nature do the work. But if the symptoms are otherwise, especially when the flooding is violent, and the patient's strength begins to fail, he must then lose no time, but pass his hand through the orifices, along between the uterus and that part of the placenta which is separated from it; provided it can be found; if not, he must insinuate the hand as gently as he can between them, taking care to increase the separation as little as possible, till he has got between the uterus and the chorion; then he must penetrate the membranes; lay hold of the child's feet, and finish the delivery as above directed.

If, indeed, the placenta is totally disengaged from the uterus, and come down into the vagina, he may then take it forth, or proceed for the child as he finds it most convenient.

When it lies quite across the os uteri, assistance must be offered either by passing the hand directly through it at the place which presents, or as above directed. This practice of penetrating the placenta I have no objection to, provided it can be done without causing a total separation, or some how increasing the hæmorrhage. But how this can be done I do not clearly understand, for I am apprehensive that the force required in making such an opening through the placenta, and then through the membranes at this place, must bring on a total detachment. But allowing that it does not, yet this perforation being made in the thickest part, and some of it, if not the principal part, still adhering to the uterus, whilst a circulation through both is carried on, and united by way of absorption, as explained in Part I. Chap. VIII. §. III. will not the hæmorrhage now be greatly increased? However, as I have not used this method, I will leave the point to be decided by future practice.

Of convul-
sions.

§. XII. In case of convulsions (if things are as shall be stated in Chap. VI. §. VIII.) the operator must insinuate his hand through the orifices as soon as it can be done with safety; then having penetrated the membranes, and laid hold of the child's feet, he must finish the delivery as directed in the preceding sections; unless the child's head is very low in the pelvis: if so, the delivery may be effected by the forceps, as shall be directed in Chapter VII.

Of twins.

§. XIII. Though twins are sometimes born in the natural way, yet as the second (if not the first) requires very often the help of turning, I shall conclude this chapter by some observations and directions concerning them; as for instance,

Two or more ova being fecundated, and conveyed from the ovaria into the cavity of the uterus, by means of the fallopian tubes, as observed in Part I. Chap. VII. §. XII. they there adhere to the uterus, and communicate with it in the same manner as if but one.

In some, their placenta remain distinct, but, for the most part, they unite, and appear to be but one. Though the part where they join is a little turned inwards, and gives continuation to the chorion, yet each hath its own system of vessels; so that should one child either sicken or die, the other may continue alive. Every child is contained in its own membranes. Such parts of their chorions as come into contact, adhere together; yet, after delivery, may be easily separated. Their vascular systems have sometimes been found to anastomose with each other; but this happens very rarely.

With respect to superfœtation, no case of that kind has yet occurred to me; nevertheless, I must own, that a second conception, in one gestation, seemeth to me very possible.

The

The signs, during pregnancy, which portend twins, have been taken notice of in Part II. Chap. I. §. II. and as to those which attend the birth, they are usually as follows :

The labour commonly begins untowardly, and continues lingering, though the head of the first child may present right, and not seem so large as to fill the pelvis ; yet its progress through it is not always so quick as might be expected. Nay, the vertex remains sometimes so long at the os vaginæ, as to make the operator think of assisting by the forceps ; and yet after all, a forcing pain will come on and bring it forth. Its size, and the quantity of the liquor amnii, are generally so small as not to appear adequate to the preceding bulk of the mother :

The funis is very short, and retracts sometimes entirely within the vagina, especially when there are more than two children. The placenta commonly remains fixed, and for the most part there does not flow so much blood after the birth of this child, as when there is but one.

The patient's abdomen externally may be felt hard and prominent, and internally, the membranes, distended with the liquor amnii of the next child, may be felt presenting at the brim of the pelvis. If the head offers, it will sometimes be distinguished early, but most commonly not till the pains of the next birth begin to force down a little. During this interval, if the child presents right, and there appears no immediate danger with respect to the mother, the operator may wait, taking care only to support her with proper aliments, to compress the upper part of the abdomen with a napkin, and at times to examine the extremity of that part of the funis which belongs to the placenta. Some apply a ligature, but this I think unnecessary, unless the vessels of the placenta anastomose : because, by a computation, I have not observed above an ounce discharged from the section.

section, neither of this, nor of the second, in cases of three; therefore, I have never had occasion to use it.

Having observed these particulars, and the progress of the birth, he may break the membranes as soon as the pains begin to force the head into the pelvis. For as, in this case, the orifices are already opened, and the child but small, the delivery will generally be effected soon afterwards.

But when the operator has waited a reasonable time, as for instance, about an hour, and the head doth not advance through the pelvis; or should he find, even before this, that the presentation is wrong, he may pass his hand and deliver by turning: which, in both cases, may be done without either danger or difficulty; therefore, with more propriety now than afterwards, even supposing that the head presents right; for, by longer delay, the patient may receive cold, and after all be subjected to the fatigue of another labour.

How to act
in case of
three or more
children.

If there happens to be more than two, they must also be brought by the feet, one soon after the other; the operator observing, as each comes through the os vaginæ, to turn the legs and thighs backwards towards the mother's nates; and then to bring down the shoulders; and lastly, the head; taking care, at the same time, to move the umbilicus as little as possible from the os vaginæ; for, by observing this, though the funis is so extremely short, it will not be injured.

When they are all brought forth, the secundines may be extracted slowly and cautiously; during which time, the napkin, which was applied round the abdomen, must be gradually tightened; without this precaution, the patient will be in danger of fainting.

C H A P. V.

OF DIFFICULT PARTURITION.

BY difficult parturition, is here to be understood every case in which the head presents ; and the child, though with the utmost labour, must either come forth in that position by nature alone, or be brought so by art. Every birth of this kind, is more or less operose, according to the circumstances from which the difficulty arises, as will appear by the following classes to which we shall reduce them ; as for instance,

§. I. First, from a weakness of the mother, either constitutional *Causes* or incidental, viz. a previous disease, long grief, disagreeable news, or any thing else which gives great or sudden surprize.

Secondly, From mismanaging a natural labour, as for instance, overheating the patient with strong liquors, and hot medicines, fatiguing her with much company, any uneasy or ill position, breaking the membranes prematurely, and hurrying on the labour too suddenly ; a method too much used by female practitioners, even at this day.

Thirdly, From the rigidity of the os uteri and vaginæ, labia pudendi and perinæum, whereby the impelling force of the conatus uterini may be long resisted, and consequently become ineffectual, though the pelvis be neither too small, nor the child's head too large, nor in a wrong position.

Fourthly, From the head's being naturally very long, as it must turn unweildily in the pelvis ; see Part I. Chap. IV. §. VI. or from its being naturally very large, and the futures firm ; for then it will enter the superior
strait

strait with great difficulty; and as it is driven along by the natural effort of the woman, it will undergo such a compressure by the walls of the pelvis, as, at last, to be squeezed out in length equal to the former.

Fifthly, From the head's resting on the upper edge of the os pubis, till the liquor amnii is discharged, and the patient's strength exhausted.

Sixthly, When the os uteri remains long backwards, and the head having entered the pelvis, bears hard against the inside of the pubes; and as it descends, pushes the anterior part of the cervix uteri, the superior anterior part of the vagina, and the neck of the bladder before it; making a large swelling or tumor in the lower anterior part of the vagina.

Seventhly, When the funis umbilicalis is so very short, either naturally, or by circumvolutions about the neck, as to make the head retract betwixt each pain; for, as the child makes forwards, there must be a strain upon the inside of the uterus, by means of the funis, (unless the placenta is detached) whereby the endeavours of nature are disturbed, and will be more so if the cervix uteri should happen to contract before the shoulders.

Eighthly, From the wrong presentation of the head in the pelvis, that is, when the face is towards the symphysis of the pubes, or a little to one side of it, or directly to the angle of the sacrum, or downwards; the chin being either towards the pubes, ischium or sacrum.

Ninthly, From an hydrocephalus, or from a dropsy of the body, whereby the child may be greatly enlarged; or when it has been long dead, and its body is distended with putrid air, which often happens to that degree, as to occasion a most difficult birth.

And tenthly, From a too small or distorted pelvis, especially the latter; as for instance, when the great angle of the os sacrum is so
very

very prominent as to come within two inches or less of the symphysis of the pubes ; when the pubes, instead of bending naturally outwards in form of an arch, is angular, or flat, or projects inwards ; or when the tuberosities of the ischii, or apex of the coccyx, are turned preternaturally inwards at the bottom of the pelvis.

§. II. Women (aged above thirty) who have a strong habit of body, and work hard, are very subject to have such labours, especially the first and second time ; likewise those who are very tall, whose hips are narrow, backs hollow, and consequently bellies prominent ; and such as have been ricketty in their child-hood, especially if the spine be much distorted, the pelvis being often so too. I say much distorted ; for I have delivered women whose spines have been a little so ; and others, who have been lame in one hip from their infancies, yet both sorts had kindly labours.

§. III. When a woman is well formed, has enjoyed good health prior to the labour, has no schirrosities, nor any other disease in the passage, no inflammation in the lungs nor pleura, no hæmorrhage from the nose, lungs or uterus, in any degree however to endanger life ; has no convulsions, and it is certain also that the child is alive ; the operator then may venture to predict a favourable event, though two or three days may sometimes elapse before it is obtained.

But when the labour becomes violent, and an inflammation, hæmorrhage, or convulsions supervene ; if the pelvis is distorted, or the passage in any respect preternaturally obstructed ; or if the child has been long dead, he may, as prudence directs him, forewarn the relations of the difficulty and danger : but he must always take care to encourage the patient as much as possible.

Signs in particular.

Though the numerous symptoms attending those births, when particularly considered, are so various, and sometimes fallacious, as to make it hardly possible to ascertain them; I shall nevertheless endeavour, for the sake of the learner, to give, in this chapter, a particular detail of such as arise usually from the fourth class of the preceding causes when left alone to nature; and, in the four succeeding chapters, describe those which belong to the rest, together with the method of assisting delivery.

First then, the patient, for several days, is afflicted with cholic pains, which are often so very urgent, as to make her believe herself in labour: her belly is at times bound, at others loose; she sleeps but little, and passes the nights uneasily.

When labour begins, the abdomen remains sometimes high towards the pit of the stomach and navel; the labia pudendi are thick and rigid; the vagina is not very open, and its orifice feels tense, sometimes full or tumified. The os uteri remains high in the pelvis; the child's head bears but little upon it; its edges are usually about the thickness of half a crown; it opens but very slowly, and there is seldom an emission of mucus from it. Nor do the membranes, with the liquor amnii, form a tumor, as in the natural parturition. If they do form one, they often break early, and the waters keep dribbling off during most of the labour.

The pains begin slow, short and irregular; are sometimes confined chiefly to the back, to one hip, or to the lower part of the belly.

And although the patient complains bitterly of their being strong and severe, yet they make but little impression on the os uteri; so little indeed, that twelve hours sometimes pass before it is opened equal to the breadth of half a crown.

Perhaps

Perhaps now, for an hour or so, they will come on every ten or twelve minutes; force down a little more, and appear to be very strong, giving hopes to the persons about her that she will soon be delivered, yet have very little influence on the orifice, and soon go almost off. Some hours are spent again; during which time, she suffers great uneasiness; her rest is interrupted, and her strength is debilitated. The pains are extremely short, and come but seldom; the os uteri is, perhaps, a little lower, yet remains the same in its thickness, and is very little more dilated.

About an hour after this, they come on again more frequently, and with greater force; the orifice now gives way a little, the patient is sick at stomach, and vomits; the pulse quickens, the child's head bears a little down; the vagina shortens a small matter, but opens not kindly; the liquor amnii keeps draining off, but the external parts are still close and rigid; there is often a mictus urinæ; and thus she goes on for several hours, giving flattering hopes of a speedy release; till strength beginning to fail by the continual toil and want of sleep, the pains again slacken.

She now appears greatly fatigued; her pulse becomes very much hurried; she tosses about in the bed; is extremely uneasy; wants to sleep but cannot; for, as soon as she begins to doze, a pain disturbs her; and thus she goes on for many hours longer, till not being able to contain herself, she screams out during each effort, and when it is off, she bemoans her miserable state.

The pains, after a while, come on again, and appear so strong, that those who attend her think now she will be delivered: nevertheless, the os uteri is perhaps all this time not opened above the breadth of a crown piece; and, as to the external parts, they are still close and rigid.

Soon after this, the head will sometimes force more sensibly upon the os uteri, by which it will open a little, and descend so freely in the pelvis, as to make an unexperienced practitioner imagine that both the patient and himself will soon be released. But presently the pains slacken again, the head halts ; and the suffering woman being now entirely worn down by the violence of the labour, and the want of rest, falls into sleepy doses ; out of which, she at first is often awakened by short and feeble pains ; but after a while, they becoming still weaker, sleep prevails, and she enjoys repose for several hours, during which time, she is now and then disturbed by a slight effort.

Having slept thus for several hours, the labia pudendi, vagina, and os uteri, all become softer, opener, and more yielding ; she retches, vomits, and now commonly the pains revive.

They begin more regularly at the loins, and come round to the pubes ; the head advances in the pelvis ; and that part of it which presents (whether it be crown or vertex) is raised up from the scull into a conic, soft, or pulpy tumor.

The os uteri spreads, and perhaps discharges a slimy or sanguineous mucus ; the liquor amnii keeps draining ; and as the head advances thus, a tenesmus comes on, especially if fæces are lodged in the rectum ; the mictus urinæ is lessened : nevertheless, the os vaginæ does not open kindly ; and the labia remain tense, and sometimes thick.

Several hours are now spent in this manner, and during this time her stomach has perhaps retained some food ; her countenance begins to appear a little cheerful ; the strength and pains to revive ; the os uteri to open so well as scarcely to be felt ; and the apex of the head having come to the os vaginæ, she now, herself, begins to expect a quick release ; the anxious (and often very impertinent) attendants think every pain will be the last ; and the midwife too is flattered with expectation ;

tion ; but ere long, their hopes begin to cease : for not uncommonly after all this, the pains slacken, become short and weak, and consequently the head remains jammed in the pelvis.

The pulse becomes now very full and quick ; and many hours pass without any perceptible progress ; notwithstanding which, the afflicted woman has pain all the time, not unusually an increased degree of it round the pelvis, sometimes in one hip, fore part, or outside of the thigh, and sometimes in both, which makes her again bewail her unhappy lot.

Respiration grows very quick, and at last, on a sudden, the pains revive ; the child's head bears upon the os vaginæ ; the labia pudendi begin to be stretched ; and the perinæum to be pushed out.

She now regains fresh vigour, her countenance enlivens, she vomits, her thighs tremble, the sensation of a tenesmus returns, she bends her body forwards, and assists her pains with surprizing strength ; and thus she goes on perhaps an hour or two, during which time, the child's head comes gradually through the os vaginæ in the following manner ; viz. each pain makes it bear against the perinæum and os vaginæ, by which the latter is dilated, and the labia and perinæum gradually extended. When the pain goes off the head goes back ; and when the next comes on, it again advances : the apex or tumor on the part which presents grows fuller and larger ; and as it comes through the orifice, it passes forwards along the anterior side of the pubes, till a considerable part of the head, which in this case is commonly very long, having come forth to the temples, the edge of the perinæum slips back on the face, the whole head arrives soon without the labia ; and then the body and the secundines follow, or are brought in the manner as described in Chap. III.

All this will nature do and suffer during two, three, or sometimes four days! And yet, by the end of the month, frequently much sooner, the patient recovers perfect health.

Nevertheless, it must still be allowed, that for the want of proper help in such cases, many women have been subjected to ailments of various kinds; and, besides, the child having remained so long in the passage, is often born dead.

C H A P. VI.

OF THE ASSISTANCE NECESSARY IN DIFFICULT PARTURITION.

HAVING in the last chapter explained what we call difficult parturition, we shall now proceed to consider how nature, in this situation, is to be assisted by art. The method of helping by the use of medicines, and that of the hand, shall be allotted to this chapter; and what regards the use of instruments, shall be reserved to the three following ones; excepting only, as we pass along, to point out when the latter is required.

In respect to the births, they shall be treated of according to the order in which the classes of their causes has already been placed.

§. I. First then, when the obstetric practitioner is called to a patient who is constitutionally weak, and whose labour proves lingering, though the pelvis is of a natural size and form, the child's head so likewise, and presenting right, and the orifices opening kindly, the delay of the birth, in such a situation, may be supposed to arise from the mother's debility. Nevertheless, I am apt to believe, that difficult births do but seldom arise from this cause, for I have attended many such patients, whose labours have been very kindly; but as they do sometimes happen, I shall here lay down a method of assisting, which may be useful not only in such cases, but in some others. It is this:

Let the patient be duly supplied with nutritive diet; as for example, good caudle, broths of different kinds, white meats, if she can eat, with a glass or two of wine afterwards, provided it agrees so well as to refresh her: but any degree of intoxication, either with this, or

Difficult
births from
natural debility.

with any other sort of liquor, must be carefully avoided; because, by such an error only, births of every kind are generally protracted.

Assistance by
medicines.

The rectum must be emptied with an emollient enema, as occasion requires; after which, the bed being properly prepared, she must endeavour to compose herself as much as she can between the pains; and, that she may have liberty to sleep, the company must retire. After this, if the pains continue to disturb her, and not to produce the desired effect, the following draught (especially if she has rested badly for sometime) may be taken.

I R Confectionis cardiacæ scrupulum unum,
Aquæ castorei fescunciam,
Tincturæ ejusdem,
Vini crocei, singulorum sesquidrachmam,
Tincturæ thebaicæ guttas sedecim,
Syrupi e corticibus aurantiorum drachmas
duas;
Misce, fiat haustus statim sumendus.

Moreover, two or three spoonfuls of such as the following cordial mixture, may be taken between whiles.

II R Confectionis cardiacæ drachmam unam,
Aquæ pulegii simplicis uncias sex,
Spirituosæ,
Syrupi croci, singulorum unciam unam;
Misce.

Or instead thereof, the following drops :

III R

III R Spiritus lavandulæ compositi unciam
unam;

Capiat guttas xxx. super saccharum subindè
presertim in languoribus.

Besides these means, he has little more to do than to see that the air in the room is kept in a temperate state, especially not too hot; and every now and then to know by the touch how the birth advances, till the pains revive, and the head begins to move sensibly forwards in the pelvis; at which time, the parts being well anointed, care must be taken to conduct the head safely through the orifices, as By the hand. directed in Chap. III. But if it should happen that twelve hours or By the forceps. more are thus elapsed, and the pains have still had no effect, or now go off; in this case, provided the birth is so forward that the vertex has begun to enter the os vaginæ, and the forehead to bear against the perinæum, rather than to suffer the woman to undergo the fatigue of a second labour, I think the child may be extracted by the forceps. But if the head is not so low, he must still pursue the cordial plan, and wait till it is; at which time, if the pains are yet insufficient, the forceps may then be used. Previous to this attempt however (as well as in some of those births to be hereafter treated of) the vesica urinaria must be emptied, either naturally by the patient herself, or by the operator, as in Part II. Chap. III. §. III. or in the following manner:

The patient being placed as for natural delivery, the operator must How to pass the catheter. place the catheter (dipped first in oil) in a flat warm basin, and pass them under the bed-cloaths close to the pudenda, then pass the forefinger of his left hand to the under edge of the meatus urinarius; which, as she thus lies, he will feel a little before the anterior edge of the os vaginæ. This being done, he must take up the catheter with

L 1

his

this right hand, and guide its point into the meatus by the finger, which was placed there.

Whilst he passes it along the urethra, the concave or curved side must be towards the pubes, and the point kept close to the same, until it gets above the brim, when it must be directed more forwards, to prevent the urethra and neck of the bladder from being bruised or hurt, between its point, and the child's head; which, at this time, must also be raised a little in the pelvis.

When the urine is obstructed in the birth, the bladder is sometimes raised considerably above the pubes, whereby the urethra is lengthened beyond its natural state; so that three inches of the catheter may be passed before its point is fairly within the bladder: upon its arrival there, the urine will issue forth; and, when it is extracted, the instrument must be gently withdrawn.

From acci-
dental debi-
lity.

When a debility of nature has been occasioned by some previous disease; by longing for some kind of food, which the patient could not obtain; by long grief; disagreeable news, or any kind of surprise: due regard being had to these circumstances (which must depend upon the discretion of him who attends) the method of assisting in other respects, must be the same as that above.

From miscon-

§. II. When the delivery has been retarded by misconduct, as for instance, over-heating and hurrying the patient, or disturbing her rest, &c, the cooling and sedative plan is then to be used, as for example, she may drink teas of any kind; orangeade or lemonade, with the addition of a very little wine; but preferable to all, are weak broths of chicken, beef or mutton; weak caudle, panada or puddings, may also be allowed; but meats, though the appetite may require them, must be eat but sparingly. If the pulse is very full and quick, as generally happens in those who are young and very plethoric,

plethoric, venæsection in the arm is sometimes necessary. The rectum must be fomented with emollient glysters; and sleep, or at least a respite from the pains must be obtained if possible, by such an anodyne as the following:

IV R Tincturæ thebaicæ guttas viginti,
 Spiritus lavendulæ compositi guttas
 triginta,
 Aquæ fœniculi fescunciam,
 nucis moschatæ,
 Syrupi caryophyllorum rubrorum,
 Singulorum drachmas duas;
 Misce, fiat haustus statim sumendus.

And a few spoonfuls of a cooling cordial, such as the following, may be given as often as she awakes; and afterwards occasionally.

V R Aquæ feminum anethi uncias sex,
 — nucis moschatæ unciam unam,
 Syrupi e succo aurantiorum, drachmas sex,
 Vini crocei duas drachmas;
 Misce.

These particulars being observed, the birth is to be assisted by the hand, as directed in Chapter III.

§. III. If the patient is of a good size and form, muscular, and works hard; if the labia and orifices remain full and tense, notwithstanding the pains have been very strong, and have continued long, and the child's head presents right in the pelvis, it may be concluded, that the difficulty arises from the rigidity of the fleshy parts, From rigidity
of the orifices.

L 1 2

that:

that is, of the os and cervix uteri, vagina, labia pudendi and perinæum. This case requires much time; during which, the patient must be kept moderately cool, and as quiet as possible. An emollient glyster may be injected every ten or twelve hours, and once in twenty-four (or oftener, if there is occasion) some respites of ease must be obtained by an anodyne.

In the mean time, the parts must be often anointed with emollients: warm oil may be injected between the child's head, and inside of the os uteri, with such a syringe as that delineated in Plate X. and when such cannot be had, a large piece of hard exungia, or fresh butter, being passed into the vagina, and left there to dissolve, will do good. When the head comes low in the pelvis, the anterior part of the os uteri may be cautiously split forwards from before it, towards the os pubis, with the point of the operator's finger; and while a pain is on, if two fingers are placed in the vagina, and the posterior part of its orifice, together with the perinæum and the apex of the coccyx, kept a little downwards and backwards, from touching the head; the latter, by this means, will be felt to advance. Nevertheless, this must be done with caution, and but very seldom; for working much, is always productive of more hurt than good. Besides these endeavours, he has little more to do, but to take care that the patient is refreshed properly, and her position made as easy to herself as possible, provided it is such as doth not disturb the birth. These means being used, nature generally does the rest herself.

Indeed, if after waiting very long, the pains should happen to go off, leaving the patient extremely low and faint, and the child's head halting at the os vaginæ, as hath been observed in §. I. rather than run the chance of a renewed labour, whereby the mother must undergo perhaps a great deal of more fatigue, and the child be in danger also of being lost, by remaining so long confined in the passage; the delivery, for these reasons, may then be hastened by the forceps.

§. IV.

§. IV. When the difficulty is owing to the extraordinary length of the child's head, there is usually no deficiency to be observed as to the pains, nor any confinement to be felt in the pelvis, besides what, in this case, must be occasioned by its curvature; see Part I. Chap. IV.

From the extraordinary length of the head.

§. VI. nor is there any rigidity of the orifices. The vertex is in form of a sugar loaf, and may be moved in the passage to and fro with little difficulty. But when it comes low, it then remains long at the perinæum, and from thence turns round very slowly towards the os vaginæ; through which, many of the strongest pains are commonly exerted to bring the head wholly forth.

When the difficulty is occasioned by the narrowness of the pelvis, or allowing this to be of an ordinary size, if the head is too large for passing on till its form is altered by compressure, the case is much the same; and may be known, first, by observing the external form of the patient; and secondly, examining the pelvis by the touch. As to the signs attending the head's progress through the passage, they are nearly the same in both cases; as for instance, the head remains long above the brim, and as it is driven with infinite labour, that is to say, by the exertions of the mother, through the superior strait, the vertex is squeezed out in form like that of the natural long head, and descends also through the pelvis in the same unwieldly and tedious manner as it doth; or rather more so, because, in these two cases, though there may be no natural rigidity of the orifices and other fleshy parts; yet, by their being so long compressed between the head and walls of the pelvis, and heated also by the violence of the labour, it is not uncommon for them to be greatly tumified, which in some degree must increase the resistance.

From the narrowness of the pelvis, or very large size of the child's head.

The method of assisting in the three cases (comprehended in this section) is nearly the same. A great deal of time is required, during which, the patient must be carefully supported with proper nutrition,

due

due respites of ease must be obtained, and refreshing cordials given, as directed in §. I. II. and III.

From the
head's resting
on the pubes.

§. V. When a woman has been a day or two in labour, and the operator finds the orifices open, soft and yielding; the os uteri remaining high, the liquor amnii draining off, and the child's head so high as just to be felt; though the patient's form may seem good (but, for the most part, this case happens in those women who have hollow backs) he may then conclude that it rests upon the brim of the pubes. In this case, if the patient has not made urine freely, or cannot now do it, the operator must assist by the catheter, then pass one or two fingers through the os uteri, in between the symphysis of the pubes and the head; by which means, the latter being heaved up, whilst, with his other hand, a pressure is made upon the outside of the abdomen, just above the pubes, the head may be thrown back towards the great angle of the sacrum (which, in this case, is usually very prominent) and then falling into the cavity of the pelvis, it will often advance so quickly, as in less than an hour to come forth. I must, nevertheless, take notice here of what was hinted in Chap. II. §. IV. namely, that in several cases where the quantity of the liquor amnii is very large, the child will rest above the pubes for several hours, till a considerable part of this fluid is run off, and then it will descend very suddenly; for which reason, I would have the operator recollect what the size of the abdomen was, before the liquor amnii began to flow, and how long it is since; and never offer help by the hand, or any other ways, till he is certain that the case requires it. On the contrary, if it so happens that, after the patient has been properly refreshed by the above means, a reasonable time has been waited without the head's approaching, he may then suspect the delay to be occasioned by a bad position: therefore, having passed his hand gently

gently through the orifices (provided they are so well opened as to admit of it) he may endeavour to find out both the size of the pelvis, and the situation of the head ; which being done, if the head cannot be easily moved so as to present right (as commonly is the case) and the pelvis will admit of bringing it whole (which it will do if it is above the third dimension ; see Chap. VIII.) he may then advance, and deliver by turning, as directed in Chap. IV.

§. VI. When a woman has been long in labour, and the operator finds the os uteri pretty well opened towards the os sacrum, but the anterior part of it remaining before a considerable part of the head, which perhaps is now advanced to the middle of the pelvis ; and a semi-lunar tumor or fulness extending from this edge of the orifice, to the symphysis of the pubes, he may then conclude, that this is part of the cervix uteri, bladder and vaginæ ; which, being pushed down, obstructs the birth.

From the anterior part of the os and cervix uteri, &c.

In this case there is commonly a difficulty, and sometimes an obstruction of urine ; therefore, if he is not certain that the bladder is perfectly relieved, this particular must be taken care of first ; an emollient enema must be injected next ; and then the patient may be duly refreshed with proper aliments, &c.

When the parts are well anointed, he may now pass a finger (the nails being cut short) between the head and the anterior part of the orifice ; then, as a pain approaches, slide this edge of the orifice and the tumor from before the head, gently forwards to the pubes.

This method may be used every second or third pain, for three or four times, provided the pains assist, and cause the head to move forwards at the same time ; if they do not, he must then be quiet, and try to recruit the patient's strength, by such diet and medicines as recommended in the preceding sections. When the pains return, and the

the vertex arrives within half an inch or so of the perinæum, he may then assist as above directed, with this difference, that as the tumor is now usually disposed to pass upwards from between the head and lower edge of the pubes, he must place the ends of two fingers against it, as a pain is coming on, and support it a while; by which help, it will soon go so well up, as not to be felt again. After this, the delivery may be obtained as in the former cases.

These means being neglected, it is not unusual to find the tumor mentioned pushed down before the head, even sometimes without the os vaginæ; the consequence of which is, that the patient, after delivery, feels a sensation of a bearing down; and some women have more, viz. a descensus vaginæ et uteri.

From the
neck's being
entangled in
the funis.

§. VII. When a labour proves untoward; and very lingering, though there is no unusual straitness, or any kind of obstruction to be felt in the pelvis; when the head, though advancing very slowly, is forced a little down by each pain, and then retracts; when this retraction becomes more perceptible as the head descends, and when the pains are all the time very short, though apparently the woman makes all the efforts in her power, it commonly denotes that the neck is entangled in the funis.

Besides, the cord being now so very short as to pull down that part of the uterus to which the placenta is attached during each pain, the cervex may be folded, or so much relaxed as to allow the orifice to fall in before the child's shoulders; and, if this happens, it will occasion a greater degree of obstruction. As in the former case, so in this, much time is required; the diet and drink must be more or less cordial or cooling, according to the disposition of the patient, and to the nature of the case. If she has not intervals of natural rest, a respite must be obtained by an anodyne, once in twenty-four hours; then

then, some attention being had to the relief of the bladder, and to that of the rectum, as in the former cases, the operator has little more to do besides waiting and assisting as above directed.

Some other methods have been recommended by authors, which may be seen in their works: but, in my opinion, little or no good can be done with the hand, till the head comes to advance through the os vaginæ, and then the assistance to be given, is the same as in the preceding cases; excepting, as the shoulders come forth, to be very careful to bend the child forwards, that is, with its breast close to the outside of the mother's perinæum, and then to bring down the rest of the body, without moving the head and shoulders far back; by which method (see Chap. III.) there will be no danger of breaking the cord.

With respect to the secundines, their expulsion must be assisted as directed in Chap. III. §. II.

§. VIII. When the face is towards the pubes, the vertex will point towards the lower part of the sacrum, and then to the coccyx; the fontanel may be felt not far from the symphysis of the pubes, and from the lower edge of that, to the perinæum and vertex, there will be a vacuity in the vagina, till the head comes very low; at which time, the vertex will strike against the bottom of the pelvis, and push it prodigiously out, before it can be moved forwards to the anterior part of the perinæum; this part being the farthest it can reach; 'till the forehead is pushed out through the orifices, and thereby made extremely prominent. During this time, the woman makes commonly very violent efforts, whereby the head bears so much upon the perinæum and posterior edge of the os vaginæ, that these parts are now in the greatest danger of being lacerated; and the child's nose also is often distorted, by its being so violently pressed against the pubes.

Difficulties from the wrong position of the head, especially when the face is towards the pubes.

M m

When

To the sacrum.

When the face is towards the angle of the sacrum, the part which presents (instead of pointing obliquely forwards from the side of the pelvis, as in the natural way) will now be directly to the symphysis of the pubes; and towards the posterior and inferior part of the pelvis there will be an empty space.

The manual assistance in both these cases is the same, namely, to pass two fingers, or more if there be room, and the os uteri be sufficiently opened between the child's head and os pubis, then to slide the head sideways, so that the part which lay next to the symphysis may now be to one side of it, no matter which; and the nearer it can be moved to the side of the pelvis the better; for, by this position, nature will be enabled to compleat the work with less difficulty.

And downwards.

When the face presents first, the mouth, nose, and other parts are so greatly altered, especially when it is forced a little down into the pelvis, as to make it very difficult to know what part it is which offers. Nevertheless, when the os uteri is so well opened, that the operator can pass his finger all round between it, and the part which presents, he will be able to find that it is the head, which is come into the pelvis; and if he minds the part which is downwards, he will feel it to be more fleshy and unequal than any other part of the head that could offer, except it was one ear; in which case, it would easily be known; and besides, if he presses the point of his finger a little against it, he will find the bones are very firm, and more unequal than any other part. But when it comes so low, that the mouth and chin can be felt, the case is manifest. All the help which can be given here (so far as I know) is to endeavour to raise the chin, and thereby let the upper part of the head come down; but then, this cannot be done (at least I never could) when the head is low in the pelvis; and another misfortune is, that whilst it is high, the os uteri is seldom or never so open as to permit the introduction of the hand without causing

causing pain and hurting the patient, which in all cases must be carefully avoided. For this reason, I do not advise the whole hand to be passed early into the passage to find out the positions, that is to say, not till the parts are opened sufficiently by nature to admit of its being done with safety. In all these three cases, nature herself will do the work; but then it is with infinite labour; and when all is done, it must be allowed that the child is sometimes still-born, especially when the face presents.

What farther assistance is required in these three cases, and in the two remaining ones, namely, the distorted pelvis and dead child, we shall consider hereafter.

C H A P. VII.

OF ASSISTING BY THE FORCEPS.

FROM what hath been observed in the preceding chapters, it must appear now (I think evidently) that artificial help, by means of instruments, is sometimes required. But as much mischief may be done by using it improperly, I shall beg leave to be as explicit as I can on this subject; though, perhaps, some of it may seem very dry and tedious to the reader.

I have declared it, as my opinion, that forceps are the safest, and most efficacious means which can be used, in order to save both mother and child; and therefore, have recommended such as I believe will be the least apt to cause pain, or any other inconveniency, provided they are made as above directed, and are employed as will be taught hereafter.

The cases that most frequently require their help, have chiefly been pointed out in the foregoing chapters, and appear to happen most commonly to women in their first labours, especially if of a strong constitution, and such as work very hard.

When they
are to be
used.

As to the time of their use, some have allowed of it when but one half of the head has passed the superior strait; nay, sometimes even before the head has come into the pelvis at all; and, in order to effect the delivery, directions have been given to dilate the os uteri, to apply them even so high as above the brim, and when that is done to lock them in the vagina, &c.

From this practice, I must beg leave to dissent. First, because, I think to dilate the orifices and fleshy parts in such cases, and then to attempt to fix the forceps, must be extremely hazardous. Secondly,
because

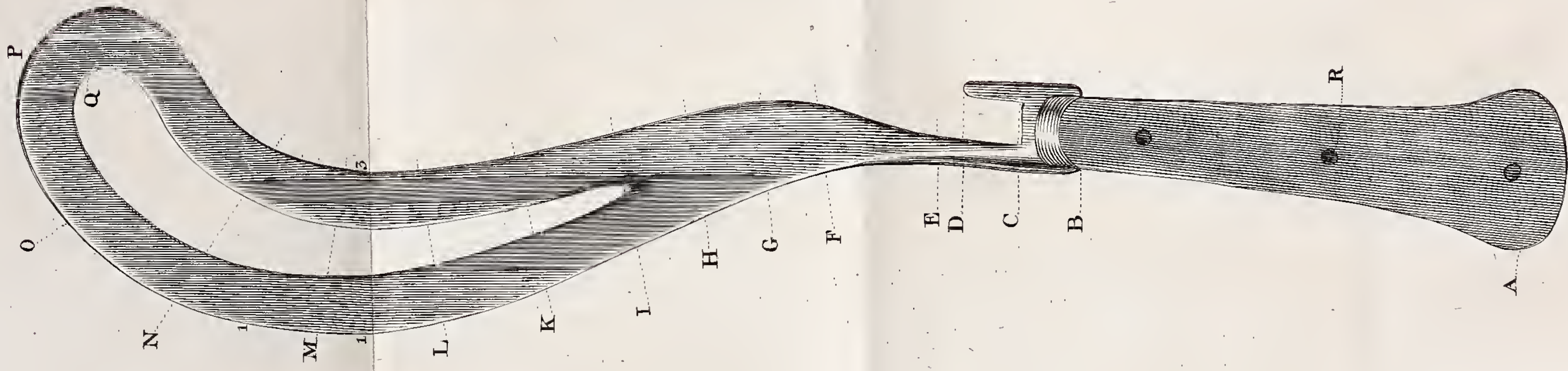


Fig. 1.

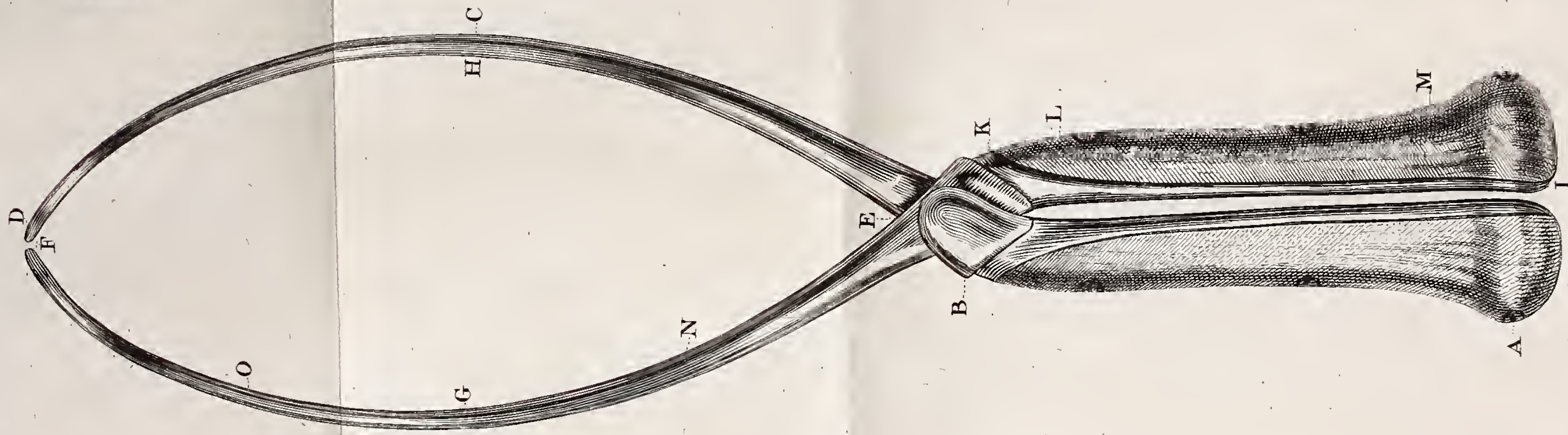


Fig. 2.

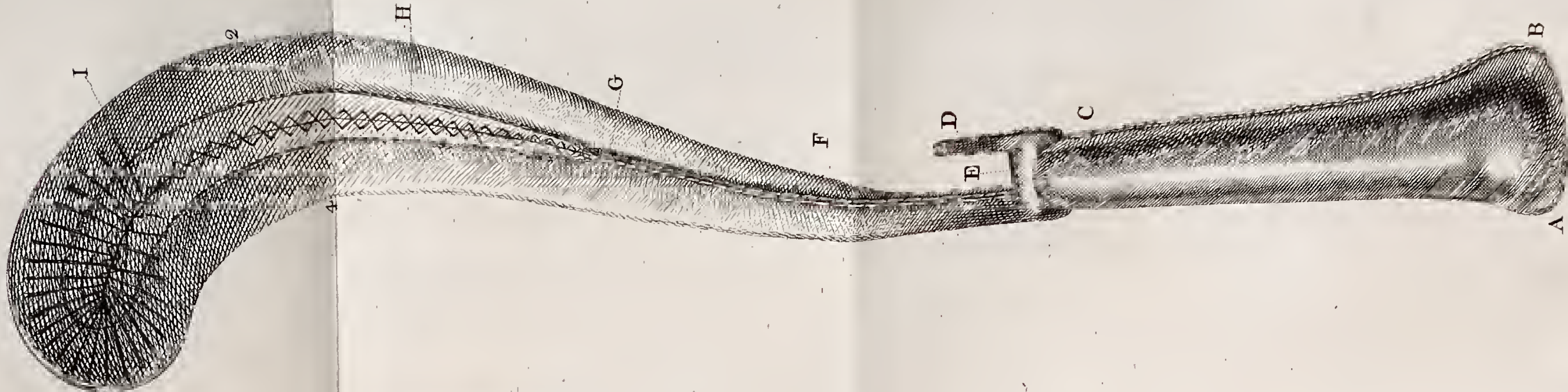


Fig. 3.

because the time is premature, nature not having as yet made her principal efforts, unless it should be what is commonly called a crotchet case, if so, it then will be considered in Chap. VIII. and thirdly, because experience has taught me to believe, that in every case where nature is able to bring the thickest part of the head into the superior strait of the pelvis, she will always be able to force it on till the vertex arrives at the os vaginæ, or at least at the perinæum; by which time, her strength being usually exhausted, the assistance of art is then demanded, and I think cannot, with justice, be refused; but more especially whenever the life of mother or child is manifestly in danger. For, when the vertex begins to protrude through the os vaginæ, the os uteri is commonly so perfectly opened, and the os vaginæ so naturally disposed to dilate, that the forceps may always be employed safely, as well as successfully, in the manner I shall direct.

But before the head is so low as the perinæum, or presents naturally, that is, with the face either towards the sacrum and coccyx, or a little obliquely towards one of the ilia (which at this time it will most commonly do, if it is pretty long) I would never have them used, unless the case be extremely pressing indeed. There are other positions of the face, however, which will admit of the head's being extracted by the forceps, and with safety too; especially when it is either towards one of the ilia, or towards the symphysis of the pubes; on which account, I shall direct how the application may be made in those two positions also; hoping thereby that the whole of what belongs to every other case, which requires the forceps, will be understood as far as it is necessary. But before I enter immediately upon this part, I must again entreat the operator to see that the forceps which he is to use are made exactly according to the figures, not only in curvatures, bends, and sizes, but that there be no edges or inequalities to press uneasily on either the mother or the child. Some (I doubt

Care to be taken that such as are used are properly made. Plate VI.

doubt not) will censure me on this point for too much nicety, as well as tautology; I own the fault, and should not have been guilty of it, had there not been many of those forceps already vended without my knowlege, that are not made according to the model which I gave. To prove the truth of this assertion, I must desire the gentlemen who have been purchasers, to compare them with the figures and descriptions given in this work.

Some have had them covered with wash-leather, a high seam running across the outer sides, which cannot but cause pain to the patient, if not injury. I have given my reasons for their being covered with morocco, and still believe it preferable to any other leather: but if some operators will not have this, I must request them to take care that there be no seams on the outer surface, and that they are newly covered every time of using, for by this extremely spongy substance (namely, what is called wash-leather) humours which are infectious may be absorbed, and conveyed from one patient to another. Indeed, danger may arise also from those which are covered with morocco, if care be not taken to wash them very clean with soap and water, after each time they are used; and when the leather grows thick or foul to have them new covered. Nay, rather than neglect this, I could wish them not to be covered at all; in which case, the joints are only to be made closer in proportion to the want of the leather, an alteration easily to be made by the maker.

How to use
them when
the head pre-
sents right.

§. II. Now, supposing these particulars enjoined, to be rightly observed, and that a case occurs which requires the forceps; as for instance, nature having had a reasonable time allowed to make her efforts, and, though duly supported with diet and medicines, &c. as directed in the foregoing chapters, yet fails; even while the child remains in danger of being lost in the birth by the long compressure; and the mother also
in

in danger of being injured, not only by the pressure which the child's head must cause upon the fleshy parts in the pelvis during this time, but by the violent fatigue which she is likely to undergo in the remaining part of the work, if not prevented by an artificial power. The operator, in this case, may apply the forceps as follows: but previous to the attempt, he must always take care that the bladder is emptied, either naturally by the patient herself, or artificially, as directed in Chap. VI. §. I.

The position of the head ought also to be known; if it presents right, which is the case now before us, the apex of that part which offers first, will commonly point a little towards the symphysis of the pubes, or obliquely towards one side of it, especially if it has advanced but a little through the os vaginæ.

The os uteri being usually now so perfectly opened, and ascended so high as not to be felt by the operator's finger, the bulky part of the head will generally press pretty close against the inside of the pubes, and anterior part of the tuberosities of the ischii. If the scalp is not raised into a large tumor, the angular part of the occipital bone will sometimes be felt pointing from the pubes, or rather from one side of the symphysis, and either one or both the angles of the parietal bones riding over each edge of it, just as they join to form the sagittal future. From this angular union of these three bones, the sagittal future may sometimes be felt running obliquely backwards towards the posterior part of the pelvis, denoting the face to be that way.

And when a finger is insinuated between the presenting apex and perinæum, there will be room for its passing easily all round on this side, but more especially in the place where the face is, unless the head is come so very low as to push out the perinæum: if so, the face will be turned more directly towards the latter; and externally, both perinæum, and the part of the head which advances first, will feel like a convexity extending equally between pubes and anus.

The position of the head being known, the labia pudendi, perinæum, os vaginæ, some of the vagina itself, especially the posterior part of it, and the part of the head which presents, must be properly anointed with exungia, or some agreeable emollient unguent; the forceps must be anointed also, and placed conveniently in the bed, so as to be used without alarming the patient, or those who attend. The patient's position must be the same as for natural parturition, with her nates pretty near to the edge of the bed. The operator also may either sit in a chair, or kneel behind her close to the bed.

Fig. 2.

These particulars being observed, he must place one or two fingers of his left hand, between the head and posterior side of the os vaginæ, take up the right side *A D* of the forceps with his right hand, slide its point in between these fingers and the head, with the convex side *C* towards them and the perinæum, and pass it gently on between the head and the inferior posterior parts of the pelvis, till it arrives above the middle of the sacrum, which may be known when only about an inch of the clam is without the orifice.

In passing it thus far, I have not yet met any obstruction or difficulty: Nevertheless, lest the posterior part of the os uteri should sometimes happen to be not obliterated, I will advise him to keep (as I have done) the clam (especially its point) close to the head, as he slides it sideways upon it, till it comes near to the left ilium of the mother, more particularly towards the decussation of the psoas muscle, and poparts ligament; where it may be pushed gently up, until its joint gets close to that part of the child's head which presents. Having gained this, he must take up the other side of the forceps, and pass it in, and up between the head, the inferior and posterior parts of the pelvis, in the same manner as he did the other; and when it has arrived above the middle of the sacrum, it then must be slid sideways upon the head, in an opposite direction to that of the other, and pushed up gently till it is exactly opposite and equal to it; at which time, the handles must be decussated,

cuffed, and brought by degrees to lock ; much care being taken also, that no part of the woman be included.

When this is accomplished, he must wait for a pain before he begins to extract, for although the pains may appear to be very feeble at this time, yet, for the most part, they are hereby so much roused, as to assist him more than if double the force was to be applied without them. When to extract.

As he begins to extract, his line of action must be towards the perinæum, but as the head advances, and the perinæum becomes prominent, this action must be directed gradually forwards, so that the head may be brought in the same circular way, as observed by nature, in natural parturition. How to extract.

Besides this curved line of action forwards, he must also, as he extracts, observe to move the head from side to side, and take care neither to make it, nor the instruments, bear too suddenly upon the os vaginæ and perinæum ; but give these and the labia time to be distended gradually, in the same manner as nature doth in the natural birth ; and he must loosen the handles also during the time of each interval, that the head may suffer as little as possible by the compression of the clams.

As the head advances through the os externum, if it is yet oblique, the face must be turned to the perinæum, the hind part kept close to the under edge of the pubes ; and, as it passes by this edge, it must be turned gradually forwards towards the mons veneris ; the perinæum, and the posterior edge of the orifice being, at the same time, carefully slid back over the face ; by which means, an overstretching of those parts will be avoided.

The head being thus extracted, the forceps are then to be laid aside, and the delivery completed as in natural parturition.

How to use
them when
the face is
oblique, or to-
wards one
ilium.

§. III. When the head is low in the passage, and the face still to-
wards the ilium, the vertex will point to the opposite side of the bot-
tom of the pelvis ; and, as it advances, push that a little farther out
than the other. The direction of the futures will also differ from
what hath been observed in §. II. but, to know the position better,
the hand must be gently intimated to search for an ear ; the alæ of
which, pointing directly from the face, will discover it.

Plate VI.
fig. 1. and 3.

The forceps here, as well as in the preceding case, must be applied
so that their concave edges 3, 4, are in the direction of the alæ of the
ears. The blade, which is to be next to the pubes, must be placed
first, and with the greatest caution.

The common way of placing one which is not curved, has been to
push the hand up betwixt the head and the pubes, in order to guide
the point of the clam safely between the os uteri and the head. This
I have no objection to, even with respect to mine, provided such an
introduction can be accomplished without either giving the woman
much pain, or raising the head so considerably in the pelvis, as to
render the application of both blades extremely difficult.

But as I have reason to think that such inconveniencies must happen,
I cannot but prefer the method of bringing the clam from behind for-
wards, as directed in §. II. For, in this case, it will pass easily round
the occiput, towards the symphysis of the pubes ; and then sufficiently
up, without much pain, or any other inconveniency, as I have often
experienced.

Whatever way, however, the operator chuses, let him take care to
insinuate the clam as gently as he can, and never push it against any
part which resists ; but withdraw it now and then a little, shift it side-
ways, keep its point close to the head, and then advance cautiously
again, till the joint is near to the under edge of the pubes, and the
clam is felt to lie free and equally upon the head. This being gained,

he

he must pass the other blade up behind, as directed in §. II. But not so high as the angle or upper part of the sacrum. As he passeth it up, he must sometimes halt, and bring it back a little; then, feeling if the point slides easily along the head without any obstruction from the os uteri, &c. he may proceed. When the joint comes to that part of the head which presents, he may pull it back about half an inch, and bring its handle across the other in order to be joined. Should both handles come equally now together, so as to lock easily, it is very well, he may extract: but if he finds them twisted, he may conclude, that the clams are not right. To remedy which, he must not use much force in endeavouring to untwist them, so as to make them lock; but shift one clam (or both if required) sideways upon the head, till they encompass it more equally, and the handles come to lock easily; which will generally be effected when the points P D lie before the ears, or on the lower posterior part of the temples. To know the direction into which he is to shift them, he must recollect the position of the face, that is which way it pointed when he first examined; and consider also, that when the head is so low as here understood, the face, instead of being directly towards the ilium, may be diagonally towards the pubes; but, more commonly, obliquely towards the sacrum. Therefore, in either of these oblique positions, he must take care to apply the forceps so that their concave edges, 3, 4, may turn towards the pubes as much as required, whilst the head is brought forth; otherways he will act in direct opposition to one intent of the curvatures, and thereby endanger the perinæum, &c. But to return, as he locks the handles, he must keep them a little forwards, and take care not to push the point of the posterior clam forcibly against the upper part of the vagina or the cervix uteri; for if he be not cautious at this instant, mischief may ensue.

Fig. 1 and 2

Fig. 1 and 3

When they are fixed, he may try, in the intervals of the pains, to twist the head a little, so as to bring the face (in case of its being either to-

wards the ilium, or obliquely backwards) towards the sacrum: but, if this twist requires much force, or if the face is turned forwards, between the ilium and pubes, he had (in my humble opinion) better not twist, but extract the head in the way it offers, observing to bring it forwards from below the pubes, as directed in §. II. though with more time and caution, that no hurt may happen whilst it comes through the os vaginae. The head being brought forth, the delivery is then to be completed in the ordinary way.

How to use
them when
the face is to-
wards the
pubes

§. IV. When the face is towards the pubes, it may be known by what hath been observed in Chap. VI. §. VIII. The forceps in this case, must be applied, and the head extracted as directed in §. II. but with this difference, that the head here is to be brought in the position in which it offers; therefore, the greatest care is required to hinder the perinaeum from being lacerated: for the crown and vertex will come so directly upon it, that unless the operator keeps the head and forceps very cautiously forwards, it must at least be over-stretched. We may here observe, that both in this case, and when the face is obliquely between the ilium and the pubes, the curved edges 3, 4, will be towards the face, but not so in any other position which requires the forceps.

As it has been taught, and is still the practice of some*, to introduce the hand first, and make it serve as a guide to the forceps; I shall, therefore, submit my reasons for deviating therefrom, to the judgment of the candid reader; they are as follows, first, in cases requiring forceps, there is always left in the pelvis so very little room, that when the hand is passed, especially so high as the os uteri, in order to guide the points of the instrument

* Doctor Mackenzie informed me that he had taught the contrary of this for ten or twelve years before the time of my first Publication.

within it, the woman must not only be put to much pain, but the head will be raised so high also, if not made worse in its position, as to render their application both very difficult and hazardous. Secondly when the head bears down on the perinæum and os vaginæ, as above observed, the os uteri is commonly so well dilated, that the cavities of the uterus and vagina are both one; the anterior and lateral parts of the orifice continue, indeed, a little sharp; but the posterior part is so nearly obliterated, as to remain only like an obtuse wrinkle, or transverse ridge, admitting the points of the forceps to pass very easily within it, when they are kept close to the head. Thirdly, on the posterior side of the pelvis there is always most room for passing them, unless the face is towards the pubes; if it is, the posterior part is almost filled, but yet will allow of their introduction, as directed in §. II. Fourthly, these forceps having a double curvature, with their claws thin, smooth, and equal, and being passed up behind, can be slid from thence to any other part which is required, much more conveniently than straight ones, or any other sort I know of, without any hurt to mother or child; and with a great deal less pain than what must happen when the hand is introduced to guide them. And, Fifthly, because I have found this method to be not only safe, but easy and successful.

I will indeed own, that in cases where the face has been directly towards the ilium, or the pubes, or obliquely between these parts, I have not used them often.

For, to speak my mind freely concerning those three positions, and moreover when the face comes foremost, I think it is much best to let nature do the work herself, unless the danger is extremely great indeed; and if it is, that the forceps ought to be used with the greatest caution; for, besides the danger in locking either these, or any other forceps, as hinted in §. III. and in bringing the head through the os vaginæ, as just observed, if the operator is unexperienced, or awkward

awkward in passing up the clams, whether as above directed or guided by the hand, in the way which was formerly taught, the points may happen to get upon the outside of the os uteri, and if they do, should he then keep pushing on, the upper part of the vagina must be perforated, and as they encompass the child's head, the os and cervix uteri will be included; the event of which is dreadful even to think of! Therefore, if he attempts the operation at all, let him keep their points closely to the head, taking care when he finds any resistance, to withdraw about an inch, shift when needful, and then advance cautiously again, as above directed. But to return:

In cases where the head has presented, as in §. II. I have delivered a great many women, some in five or ten minutes, others slowly, as in twenty or thirty; nay, in some cases where the rigidity of the external orifice has been very great, I have waited and assisted the pains gently for almost an hour, in order to give time for a gradual dilatation; and at last, have succeeded without the least hurt to mother or child. In others, the child's head has appeared a little bruised, but, in a few days all has been well; and, as to the women, I know of none who have the least complaint from the use of them. Nay, in many cases, their application has been so quick and easy, as not to have been known by the patient.

A case where
the forceps
may be foiled.

§. V. Notwithstanding what has been said in §. II. III. and IV. there is a case which will foil the forceps, namely, when the head is considerably longer than the clams; for in this case, as they cannot get beyond the thickest part of the head, they cannot be fixed. This, however, will but rarely happen; if it doth, I would have him take care, and not have recourse immediately to the use of the embryulcus, but support nature, and give her time, for even now she will sometimes do the work herself.

He

He may also be hard put to it by meeting with diseases in the passage, as schirrosities, &c. which being evils not reducible to any determinate method of cure, must be treated as he finds they require. More will be said on this head in Chap. IX. Diseases in the passage.

Besides these cases, there are supervenient symptoms which may happen to embarrass him, as for instance, when either a flooding or convulsions come on in the time of labour, the head of the child being yet on its passage through the pelvis, but not so low as to admit the fixing of the forceps. Happy it is, however, that the former of these incidents happens but very rarely at this time, unless the placenta hath adhered so nearly to the os uteri, as observed in Chap. IV. §. XI. If the pains are pretty good, and the hæmorrhage moderate, it is not to be much dreaded; but when it becomes so violent as to threaten the life of the patient, the delivery must be effected either by turning, by the use of the forceps, or by that of the embryulus; whichever of these ways the operator finds most consistent with the nature of the case, a regard being always had to the life of the child, as well as to that of the mother, so long as the safety of the latter will admit of it.

Convulsions (I believe) happen more frequently, especially to women who are naturally hysterical; and yet, after a fit or two in the course of the labour, most commonly towards the latter end of it, they sometimes go either entirely off, or the pains become so effectual, that all proves well.

But when they seize those of strong fibres, and of constitutions extremely susceptible of irritation, even returning often, and continuing with violence, the danger is then indeed manifestly great.

To relieve the patient, the following method may be observed; if she is plethoric, bleed to about eight ounces; but, whether so or not, let her take the following draught:

OF ASSISTING BY THE FORCEPS.

R Aq. puleg. simp. ℥jss. tinct. theb. gr. xx.

tinct. castor. fyr. simp. an ʒij.

Misce, fiat haustus.

A spoonful or two of the julepum e moscho, or such a mixture as the following may also be given from time to time ;

R Aq. puleg. simp. ℥vj. sal. succin. ʒss. tinct.

valerian. simpl. fyr. croc. an. ℥j. m:

An emollient enema may be given also. But should the convulsions continue violent, even after these means have been used, the patient's strength failing, and the pains consequently slackening, so much as to give no hopes of a speedy delivery, I think it is best then to take away the irritating cause, namely, the child and secundines; unless the thickest part of the head is come through the superior strait of the pelvis; if so, and the patient's strength will admit still of some more delay, the operator may wait awhile; for though the pains may seem but very slight during the convulsions, yet the head will sometimes come so low, that it may be laid hold of by the forceps; an instance of which I met with about two years ago, where both the mother and the child were saved in the birth, and did very well. But if the head is not so far advanced, nor the pains so forcing as to give hopes that it will descend time enough to fix the forceps, he may then raise it till he can pass his hand by it into the cavity of the uterus, and deliver by turning; which I have also done successfully, even whilst the woman was in the strongest convulsions.

Should a case indeed happen, in which the head is so strongly forced down, and the uterus so violently contracted, that he cannot advance to the feet, without either exerting so much force, or taking up so much time as to endanger the loss of the mother; or should the pains

not

not be able to bring the head low enough for the forceps, I then know of nothing better than the embryulus; by the help of which, there is no doubt but he may deliver the mother safely. But as the child cannot have the same good fortune, the operator ought still to be cautious, and never attempt this way of delivering, till he is perfectly convinced of its absolute necessity *. Nay, even then, the task is extremely disagreeable. All I can say, is this, when he acts to the best of his judgement, what can be required more?

If, however, he is but a young practitioner, the calling in others of long experience, is most certainly right.

* The cases which require this method of delivery, will be more fully considered in the next Chapter.

C H A P. VIII.

OF EMBRYOTOMY.

AS the obstetric instruments of the antients were not (as appears to us) so well contrived as to save the fœtus in the birth; and as the operation of extracting it by them, through the natural passages, was called embryotomy, we shall here take the liberty to call the subject of this chapter by the same name.

I think I may venture to say (and it is with pleasure I do it) that the practice of midwifery is now on such a footing in this country (and I hope it is the same, or soon will be so in others) as almost to explode the preposterous practice of extracting infants before they are known to be dead, by such instruments as cannot save them.

I say almost, for it still must be allowed, that some cases occur (though happy it is they are but very few) wherein it is not in the power of art to save both mother and child. Hysterotomy, indeed, may be thought an exception; but what we have to say on this head shall be reserved for the next chapter.

Though several authors have treated of the cases which are here to be considered; and though it cannot be supposed but every experienced and judicious practitioner must know them; yet (as I humbly conceive) an explanation, serving to ascertain the circumstances, which, in such cases, exclude the possibility of saving the child as well as the mother, is still very necessary; not only as an advantage to the student, but towards the preventing of such fatal mistakes, as it is to be feared, have too often happened in this part of the obstetric practice.

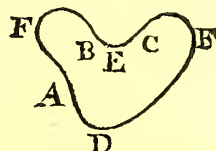
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The cases here meant, are those which can neither be assisted by the hand nor by the forceps, as directed in the preceding chapters; arising from something wrong either in the mother or in the child; or in both together.

As to the mother, I am convinced (and I doubt not but many others are the same) that such births may be occasioned by a very small pelvis, though in other respects there is nothing wrong.

The causes of such difficulty from the state of the mother's pelvis.

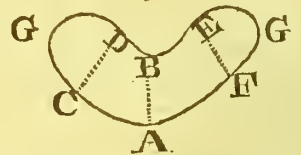
In July last, I saw a pelvis of so small a size, though very well shaped, as to measure only four inches between the ilia, and scarcely two and a half from the angle of the sacrum to the symphysis of the pubes. A mature child (after an experienced and very ingenious operator had used his utmost endeavours to save it, as well as the mother) was obliged to be extracted through this pelvis by the common crotchet. That distortions of the pelvis bring on such difficult births as these, the best writers and practitioners evince. In Dr. Hunter's museum, there is a pelvis, the distortions of which, serve also as a proof. Its brim is of this form.



The lumbal spine makes a large bend over the brim, and obliquely to the right side; forming it, as it were, into two arms, one larger than the other. The breadth of the right-arm (as I call it) from near the union A of the ilium and pubes, to the right side of that bend of the vertebræ B, which projects immediately over the pelvis, is only an inch and a half; and that of the other, measuring between the same parts on the left side at C, is two inches and a half. The distance, indeed, between the symphysis D of the pubes, and projection E of the lumbal spine, is three inches; but betwixt the ilia F F, it cannot be so well ascertained, because the vertebræ are considerably before that place, where a straight line for this purpose should be drawn.

There is another pelvis in the same museum, extremely deformed, and so very small, that the widest part of the brim is not above an inch. Nay, the whole structure of this pelvis, being such as apparently to have prevented the means of procreation, we shall say no more concerning it.

In January last, Dr. Kelly shewed me a pelvis, and a section which he had taken of the size and form of its brim. The form was thus;



and the dimensions (measured before me) were exactly as follow: the distance between the symphysis A of the pubes, and the angle B of the sacrum was only an inch, five-eighths and one sixteenth. On the right side of this strait A B, viz. at C D, it was two inches and one-sixteenth; and on the left side at E F, it was an inch and a half; but between the ilia G G, it was five inches and three-quarters; which helps to explain how the child, when much flattened, could be brought through it in that manner, in which it was most ingeniously effected by the doctor.

The circumstances attending this birth, being not only remarkable, but useful in regard to the subject before us, I shall here insert them in the doctor's words, together with some very judicious remarks which he has made upon the case.

“ In the year 1758, I was desired by Mr. Ford, a surgeon practicing
 “ midwifery, in Long-Lane, Southwark (now at Poole, in Dorset-
 “ shire) to give my opinion of a poor woman under his care, in the
 “ parish work-house, who was at her full time of pregnancy, and
 “ had been in strong labour during the space of five days; but with-
 “ out the least sensible advancement of the child's head into the pelvis;
 “ the membranes and water discharged soon after her pains came on,
 “ but the child's head remained above the brim of the pelvis as high
 “ as at the beginning of labour.

“ The

“ The cause of this obstruction was very manifest, for as he had
“ sent me word the pelvis was distorted in a very uncommon degree,
“ and the projection of the sacrum, and last vertebræ lumborum was
“ so very distinguishable by the touch, that it was easy to judge by
“ measuring with the finger, that there could not be more than the
“ distance of two inches from that projection to the symphysis of the
“ pubes. The head of the child seemed to be large and firmly
“ ossified, and the parts in the passages were so extremely sore and
“ tender, that the poor woman could not bear the most gentle ex-
“ amination without great pain. Under these circumstances it was
“ thought adviseable to make a free opening in the cranium, and
“ evacuate its contents, and then leave it to collapse and settle into
“ the pelvis gradually by the pains; for though the patient was
“ somewhat faint, and much fatigued by a continuance of pain, her
“ pulse did not shew any signs of immediate danger. A large opening
“ was accordingly made, but not without much difficulty, on ac-
“ count of the head’s projecting so much over the pubes, that the
“ shank of the scissors was pressed forcibly against the perinæum, to
“ get the points in a proper direction. The cranium being well
“ emptied of its contents, and an anodyne administered, I did not
“ see the patient again till the same time the day following; being
“ well assured, that notwithstanding the advantage that might be ex-
“ pected from the method employed, it would require a consider-
“ able time before the head could possibly descend into the pelvis,
“ low enough to make the extraction tolerably easy. I found her
“ pains had been frequent, though not so violent as before; and on
“ enquiring, found the head advanced into the pelvis, so low that
“ the jagged edge of one of the parietal bones, was pressing against
“ the inner part of the perinæum, very near the os externum. By
“ the help of the blunt hook, the head was brought forth in little
“ more than a quarter of an hour, amazingly flattened; the shoulders
“ stuck

“ stuck about half an hour, and so filled up the passages, that it was
“ difficult to pass the blunt hook to one of the arm-pits. The child
“ likewise stuck at the hips, but not above half so long as the
“ shoulders.

“ The day after delivery, I found the patient remarkably well, and
“ she continued to go on so till about the eighth day, when having
“ imprudently drank freely of raw porter with some people who came
“ to see her, she was soon after taken with a violent purging, which
“ carried her off in three days, in spite of all that could be done
“ for her.

“ N. B. Had there been an appearance of immediate danger, when
“ first I saw this woman, I should have thought that nothing but the
“ Cæsarian section, could have given her a chance for her life; for
“ as to the method commonly made use of in distortions of the pelvis,
“ such as we too frequently meet with, I mean that of proceeding to
“ extract with the crotchet, immediately after the disagreeable operation
“ of opening the head; it would, in this case, have been attended
“ with insuperable difficulties; it must have been the work of
“ some hours, attended with much toil and embarrassment to the
“ operator; and what is of much greater consequence, more pain
“ and fatigue to the patient, than in all human probability she could
“ possibly have borne, without sinking under the operation.

“ In the distorted pelvis which we commonly meet with, the distance
“ at the brim between pubes and sacrum, is generally about
“ three inches; in such, if the patient has a tolerable share of
“ strength and good pains, provided the child's head is not very
“ large, or though large, yet not too firmly ossified to elongate and
“ flatten by pressure; by waiting with patience, we have often the
“ pleasure to see it come forth alive and well; but too frequently a
“ defect in one or more of those circumstances, reduces us to the distressful
“ necessity of destroying the child to save the mother, even
“ in pelvises of that dimension.”

Births

Births of such a difficult nature as we are now treating of, do but seldom (as I imagine) arise from the bulkiness of the child, unless it be drop-fical; or, when long dead, much distended with putrid air. For, by considering the cases which have occurred to me, I am led to believe, that women who are very small, have most commonly children of sizes in proportion to their own; so that allowing their pelvises to be but little (though this does not always follow) yet if the operator finds such a one well formed, and the child presenting right, I think he should always take care and wait a proper time before he has recourse to any kind of instrumental means whatsoever.

Lastly, What I mean by a difficult birth arising partly from the mother, and partly from the child, is when the pelvis is either distorted, or less than the natural size; and the child, at the same time, is rather above the ordinary size.

Partly from
the mother,
and partly
from the
child.

§. II. Though it is evident such cases occur, yet, to distinguish them from those wherein the child (if alive) may be saved, it is sometimes very difficult; hence the operator, allowing him skilful, cannot be too circumspect in making his inquiry before he begins the operation. Nay, though the patient may have formerly been delivered by art only; yet, nature is not to be disregarded in the case now before him; nor is the extent of her power always to be known before hand as to future ones: for even after several such difficult births, she will sometimes effect a safe delivery by herself. Instances of this I have seen, and many others I have been informed of by gentlemen of veracity.

To distinguish those cases arising from something wrong in the mother, it may be necessary to observe, first, the external form of her body; if her size is very small, the lumbar spine distorted, the back

How to dis-
tinguish those
arising from
the mother.

very hollow, the hips very narrow, and one higher than the other, some difficulty is portended.

But to come to a certainty, an examination must be made by the touch when labour is begun.

On passing the finger along the vagina, if the coccyx, or any part of the sacrum be felt unusually forwards or near at hand; or if the symphysis, or any other part of the pubes is found projecting rather inwards than outwards, it is evident that the pelvis is distorted. In which case, as well as in those where it is not distorted, but only very small, the principal part of the child's head (allowing the presentation right) remains high, the vertex making only a little round tumor within the brim: so that when the os uteri is opened, and come a little forwards towards the pubes, the capacity of the pelvis may be found out by moving the end of the finger round that part of the head which has entered the upper strait. This method is used by several practitioners in London. However, should the finger not be long enough to effect it properly, as sometimes is the case, there is then another method, which, being more certain, may be used, provided it be done with tenderness and caution, and when the orifices are so well opened as to admit of it with safety. But previous to it, the operator must be well acquainted with the dimensions of his own hand, viz.

First dimension of the hand is full four inches.

First, The fingers of a middle sized hand (as we may suppose the operator's to be) being gathered together equally into the palm, and the thumb extended and applied closely along the second or middle joint of the fore finger; the distance between the end of the thumb, and outer edge of the middle joint of the little finger is usually four inches.

Second, three and a half.

Secondly, Whilst they are in the above position, the distance from the thumb, at the root of the nail, in a straight line to the outside of the middle joint of the little finger, is full three inches and a half.

Thirdly,

Thirdly, The fingers being still in the same situation, and the thumb laid obliquely along the joints next the nails of the first two fingers, and bent down upon them. The distance between the outside of the middle joint of the fore finger, and the outside of that of the little finger is three inches and a quarter. Third, three inches and a fourth.

Fourthly, the hand being opened, and the tops of the four fingers being a little bent, so as to come nearly in a straight line, their whole breadth across the joint next the nails, is two inches and a half. Fourth, two and a half.

Fifthly, when the first three fingers are thus bent, their breadth across the same joint is two inches. Fifth, two.

Sixthly, The breadth of the first two, across the nail of the first finger, is one inch and a quarter. Sixth, one-fourth.

And seventhly, The hand, being formed as directed in Chap. IV. §. III. will measure in thickness, between its back and the fore part of the thumb, two inches and two-eighths. Seventh, two two-eighths.

Now, as hands are extremely various, the operator ought always to know how much the size of his differeth from the above dimensions, and this being rightly understood, the application may be made as follows :

The patient, being in the position as for natural delivery, and the operator's left hand being well anointed, and the fingers and thumb gathered into a cone, it must be gently passed into the vagina, and then through the os uteri, unless in this part there is still a rigidity to forbid it ; if so, the fingers only must be passed, their extremities formed into the fourth dimension, and then placed edgeways in the strait ; which being done, if the fore finger touch the angle of the sacrum, and the little one the symphysis of the pubes, the width is then manifestly no more than two inches and a half ; a space through which a mature child can neither pass alive, nor be brought so by art, unless it happens to be preternaturally small indeed. If he has reason

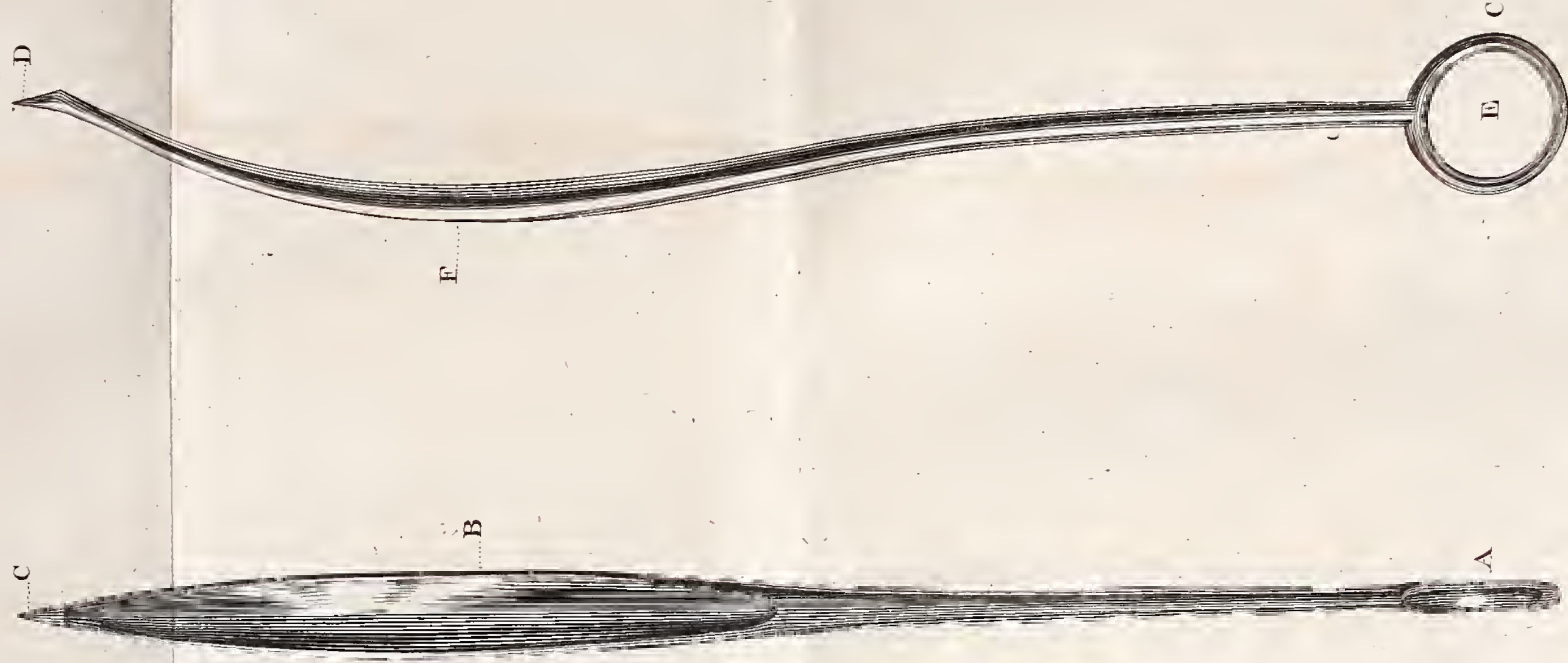
to think it is, and that the os uteri is disposed to dilate, and the pains also inclined to bear down with considerable force; he may wait awhile to see what nature can do, but during this time, he must take care to support the patient duly with such diet and medicines as those directed in the preceding chapters. These particulars being observed, if the child comes forward it is very well, let nature do the work; but if it doth not advance (which most likely will be the case) the delivery must be obtained by art.

When the superior strait is found less than the fourth dimension, the case admits of neither doubt nor delay; the delivery is to be obtained by the embryulus; or by such kind of help, as soon as the orifices are opened enough to permit it; except the passage proves so narrow as the sixth dimension, or nearly so; if this be the case, the mother has no other chance for life than that of hysterotomy.

But, in the first examination, if the strait be found wider than the fourth dimension (the more so the better) the hand must be passed through the os uteri, as soon as it can be done with safety; then formed into the third dimension, and placed as before, that is, with the fore finger towards the angle of the sacrum, and the little one towards the symphysis of the pubes; which being done, if the strait is found less than the last dimension, he must carefully endeavour to find out the size of the child's head: if this proves small, there is a probability of its passing; but if it be large, there is little or no hopes of its being born alive. However, in both cases, he may wait till he is truly convinced that nature is unable to do the work; and then with propriety he may deliver by the embryulus.

Upon the last investigation, if the strait be found fully equal to the third dimension, it is best (in my humble opinion) to proceed and deliver as directed in Chap. IV. provided the child can be easily turned. If the pelvis be wider than this dimension, the more so the better, the operation will not only be easier for the operator, but safer also for
mother

Plate VII.



mother and child : but in all cases where it is less than the third dimension, I cannot recommend turning, as I think the head must be in danger of being left behind.

§. III. Now what regards the child, though it often is of the greatest moment to know whether it be alive or dead ; yet nothing in the obstetric art is more difficult to discover. Many authors have wrote upon the subject. All that I have been able to learn hitherto, by the closest attention, proves little more than what hath been said by those gentlemen : nevertheless, what I know from experience to be true, I will venture to relate.

Patients, whom I have known to have their infants die in the womb, were generally seized with coldish chills, at the time when the child might be supposed to have sickened ; some only a few days before labour, and others sooner. These chills became stronger, as the child grew weaker, even so much, that at its death (which usually happened a few days, sometimes more, before the birth, as could be judged by the degree of putrefaction) to resemble the fit of an ague.

Signs which give suspicion of the child's being dead.

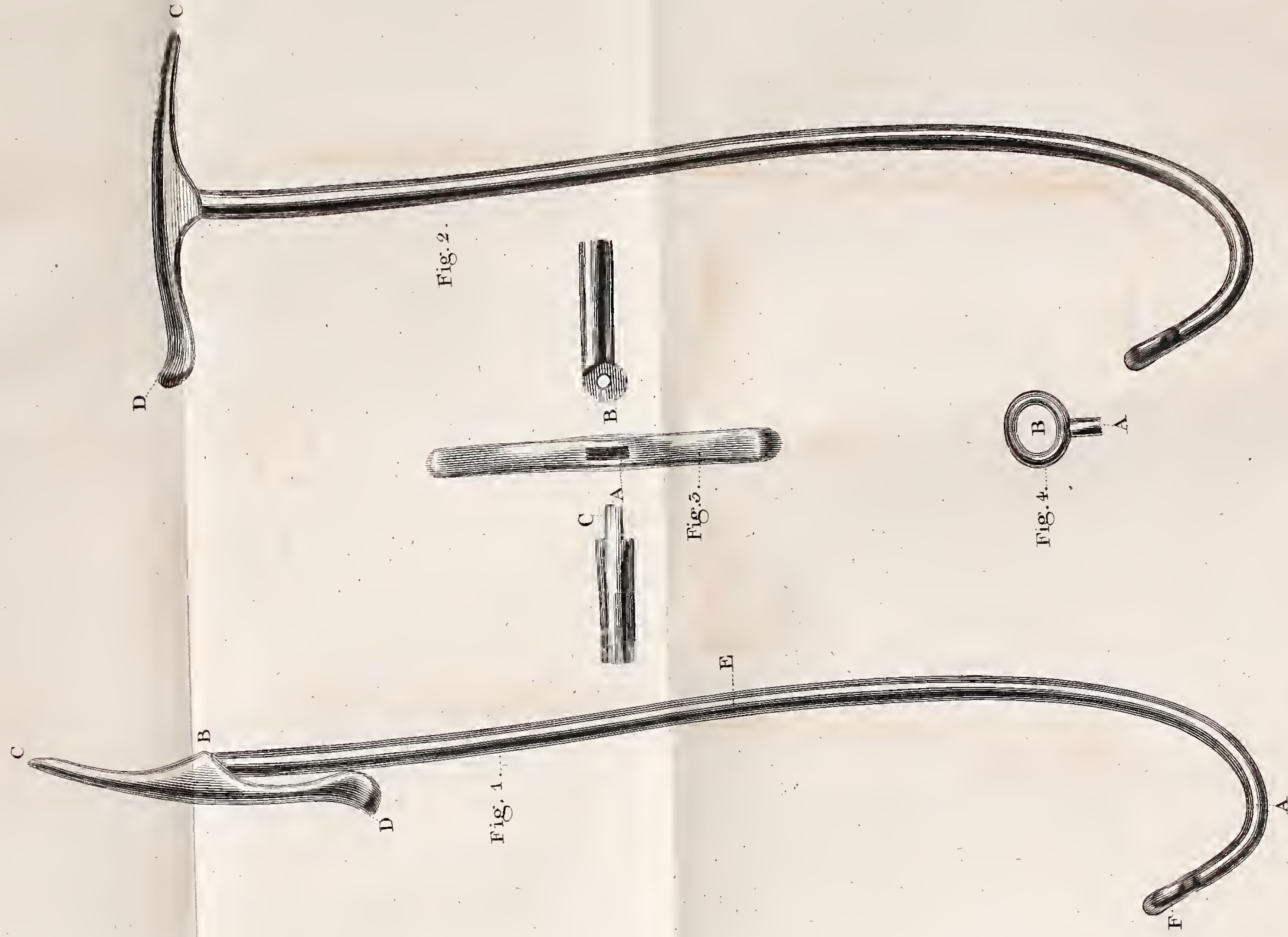
From the first attack, there was a gradual decay of appetite, they were thirsty, slept badly, turned in bed with much difficulty ; the breasts became less and flaccid, and sometimes milk run out of the nipples.

Their bowels were much disordered from the time of the child's death ; they generally felt a continual coldness, and uneasiness in the whole abdomen ; and a considerable pain in the umbilical region.

Their labour came on in a lingering and very untoward manner ; and, during its whole course, they were more languid and unweildy, than is usual in other difficult births. When up, they were unwilling to lie down ; when in bed, loth to turn or to rise again.

These, indeed, are common to some who are worn down with the fatigue of any kind of birth.

But when the child was dead, they were more so : and as they turned, their bellies always fell in a loose manner, to the side on which they lay ; they were also uncommonly prominent at the navel, and hollow at the flanks. As to the abdomen's feeling colder than the rest of the body, I have not as yet observed it ; I rather think (as by experience I am taught to believe) that women, in those cases, have less vital heat than whilst their children are alive ; consequently their whole bodies must feel colder than the natural standard ; and this in proportion to the degree of their weakness. But to return ; they also complained of an uncommon foreness in the whole abdomen, more especially in the umbilical and hypogastric regions, both whilst the pains were on and off. The membranes broke soon, the liquor amnii was fœtid, very dark coloured, and usually but small in quantity. Their countenances were generally pale and dejected, with sometimes a darkish flush in the cheeks, and the skin appearing more or less of a cadaverous colour ; the pulse was low and quick ; the breasts were always soft and extenuated ; the pains were slow and short, and had but little force, though they complained bitterly of their being extremely sharp, and hard to be endured. The os uteri opened very slowly, the head consequently advanced so, and the bones were commonly more loose and yielding than is usual when the child is alive ; nay, some were entirely separated, and felt in the scalp like shells in a bag. In these cases, the upper part of the head made a large and yielding tumor in the vagina ; but the basis of the skull was generally held so fast in the os uteri, as to retard the birth. Some cases I have met with, where the head has remained some time at the brim of the pelvis ; during which time, a large quantity of the meconium has been discharged ; and then, when the child came



came forth, it appeared to have been dead several days before the labour.

In others, and indeed most of those where the child has been long dead, putrid air has rushed from the cavity of the uterus, making a crepitus or rustling noise, and its steams so extremely noxious, that with much difficulty I have kept from fainting, whilst I was engaged in the operation. As to the separation of the hairy scalp, I have never yet met with it, although I have extracted many children whose cuticle hath been detached in several places; whose bodies and secundines have been very livid, and even so extremely rotten, as to break in pieces in the birth.

In all cases where the navel-string has been prolapsed above half an hour, now cold, flaccid, and without pulsation, whatever other part of the body presented, I have always found the child dead.

Though these symptoms attend cases where the child is dead, I must, nevertheless, acquaint the student, that many of them do happen, and yet the child comes forth alive; but then it is observable, that such children have usually a cadaverous aspect, are generally sickly, and not uncommonly die in the month, or soon afterwards; their secundines also have generally a fœtid smell and livid colour.

Notwithstanding all this, I neither do myself, nor will I advise others to rely on any more of those signs than three, namely; first, when the bones of the skull are separated, and may be felt like loose shells in a bag, this will soon happen when the child is dropfical. Secondly, when the hairy scalp peels off; in which case, the bones also will most likely feel loose. And thirdly, when the funis has been down above half an hour, is entirely without pulsation, and become cold and flaccid.

As so few signs can be depended on, it may probably be asked, why so particular concerning those which are doubtful? My reason is, that in cases where such happen, if the mother, in the course of her labour,

Certain signs
of the child's
being dead.

labour, should happen to be in danger by any supervening incident, the operator then need not be under so much difficulty with respect to the child, as if no such signs had happened ; but attend to the mother, whose life must always be preferred to that of the other.

When it is, therefore, known by the three signs above-mentioned that the child is dead ; when the pains are not forcing, but feeble, and the patient's strength so likewise ; when the head has descended into the pelvis, and the orifices are so opened that the operator can easily pass his hand ; I say, rather than the patient should be suffered to undergo a tedious and laborious labour, she had better be delivered by the embryulcus.

§. IV. As those cases which arise partly from the mother, and partly from the child, may be distinguished also by what has been already observed ; I shall now proceed to describe the operation.

The manner
of applying
the director.

Plate VII.
Fig. 1 and 2.

First then, care being taken that the bladder and rectum are emptied, the patient may be placed as for natural delivery (and remain so during the operation, unless some great difficulty renders it more convenient to have her lie in the position as for preternatural parturition.) The operator must now insinuate his left hand into the vagina, with the tops of the fingers within the os uteri, and close to the apex of that part of the head which presents ; then take up the perforator (or director) with his right hand, and slide its point C D, grooved side B F, along the palm of the left hand, and the sulcus formed by the juncture of the middle fingers, till it arrives at the apex, or a little to one side of it, through which it must be forced into the head. If the bones prove so firm as to resist the point, he must bore a little as with a terebra, and then it will penetrate.

The manner
of applying
the embryul-
cus.

When it has passed as far as the broadest part B of its groove, the handle A C E, must be moved off a little from the flat of the hand, and then he must take up the embryulcus with his right hand, and pass

pass it between them, with the convex side D of the swivel to the hand, and the point C along betwixt the groove of the middle fingers, and that of the director, till it gets to the perforation, through which it must be pushed, till it is entirely (or nearly so) within the head. This being done, the director must be withdrawn and laid aside.

Plate VIII.
Fig. 1.

The swivel being now wholly in the head, the fingers must be kept close to the outside of the skull, betwixt the end D, and the shank E B, whilst the handle is pulled back, whereby the swivel will turn across within the head, like B C; upon this it must be moved about till the ends are towards the ilia, or widest part of the pelvis, in order to prevent their striking against the pubes when he begins to extract.

How to turn
the swivel.

Fig. 2.

Having thus obtained a good hold, he must now wait for the assistance of pains (if they are at all to be depended on) and extract (though cautiously) whilst they are present; the direction (especially if the head is high) being first towards the coccyx.

How and
when to ex-
tract.

When the extracting force is applied, the left hand must always be kept against the outside of the skull, and as the head is brought through the os uteri, if this be not dilated so much as to permit the swivel to come through it transversely, the point C must be pressed a little back, by which obliquity, the fingers being still on the outside of the head, opposite to the end D, and the thumb between that and the shank, he may then extract with safety.

How to bring
the head
through the
os uteri.

When the eductor, and part of the child's head have come through the os uteri, the swivel may be turned transversely again; and then he may extract as before, till they arrive at the os vaginæ, where the same care must be taken as when they were brought through the os uteri.

How to bring
it through the
os vaginæ.

The upper part of the child's head being thus conducted to the outside of the os vaginæ, the end D, of the swivel must be turned to the anterior part of the pubes; by which position, the extracting force

may be directed forwards in that course which is observed by nature; and the other end C, consequently will fall back obliquely, so as not to force the head too much upon the perinæum.

If the perforation is made in one side of the apex, and he finds a considerable resistance to the force which is applied, the end D must be turned across behind it; for this apex is the part where the extracting force being applied, the head will readily come forwards, until it is entirely without the orifice; then the embryulus may be taken away, and the delivery finished as in the preceding chapters. When the scalp, bones, and meninges are so firm as to sustain the hold of the eductor, this whole operation may be easily performed in less than ten minutes. Nevertheless, I think it is better to let the time be longer, that the head may dilate the orifices as gradually as the nature of the emergency will admit of.

How to act
when difficul-
ties arise.

§. V. In some cases, difficulties arise which I must here take notice of; and, at the same time, point out the method which I have found to be the most effectual. They happen when the pelvis is so narrow as to cause a very great resistance to the force which is required in extracting, or when the skull and meninges are so brittle as to break and tear into pieces.

In both cases, when the first hold gives way, the swivel must be shifted round in the head; and the left hand, as directed before, kept always opposite to it, on the outside of the skull, whereby a separation of the parts will be sometimes prevented; and if the hold comes away entirely, the hand being thus placed, will guard the instrument from striking against the patient.

Care to be
taken when
the bones se-
parate.

When a separation happens, the bones, as they become loose and detached, must be carefully taken away, so that no hurt may ensue from their sharp edges and angles. This may be done by the hand, after which, he must endeavour to pass the end of the swivel behind the falx

falx of the brain, in order to entangle that and a part of the meninges also, by twisting the instrument about; which being done, a hold will sometimes be obtained, whereby the head may be brought forth.

But if this fails, he must turn the embryulus, lay hold of the swivel end, pass the handle A along the face, and fix its point B either in one of the orbits, on the root of the mouth, or under the chin; which being done, the left hand must be placed in the passage, against that side of the head which is opposite to the instrument, whereby the head will be kept steady betwixt them in the centre of the pelvis. So that when the extracting force is applied, the child will be brought along, though the resistance be very great.

Should a case occur (which I think can but rarely happen) where the basis of the skull cannot be brought through the os vaginæ by this instrument, there is still another resource without either hazard or hurt to the patient, and not a great deal of trouble to the operator, viz. a fillet or silk belt, about an ell long, with the two ends joined together by a knot. This fillet may be used as follows :

The noose (or part opposite to the knot) being passed through the ring B of the eductor, the operator must then place it round the fingers of his left hand, and sustain it there by the top of the thumb. In this manner, they must be passed up to one side of the child's head, and the handle of the eductor along the other side as high as the neck; when he must open the duplicature or noose, by spreading out the fingers and thumb; then work or slide it over by degrees upon the head.

When it is round the head, and the ring of the handle is as high as the neck, the fillet may then be extended a little, by taking hold of the knotted end, whereby the noose will be raised towards the neck; the ring here serving as a pulley. The noose must be moved still higher by the fingers, which are within the vagina; and when it is

When the eductor must be used as a crotchet. Fig. 1.

When the help of a fillet becomes necessary, and how it is to be applied.

got over the basis of the skull, the knotted end must then be pulled tight, and now the noose will slip upon the neck, and encompass it strictly; this being done, the extremity or knotted end of the fillet, must be rolled tightly about the swivel, and then the operator may extract with safety, as well as with sufficient efficacy.

Though I have (to avoid a multiplicity of instruments, as much as I can) described how this fillet may be used by the embryulus; yet, I must own, there is a probability of applying it better by help of a blunt crotchet, which I invented lately; but as I have not had occasion to use it for this purpose, I cannot recommend it from experience.

In order to make the application this way, the fillet A B C D, must be disposed on the crotchet E F G H I K, as it is represented by Fig. 7. Plate IX. Then the operator must place the thumb of his left hand and three of the fingers, viz. the middle one, the ring one, and the little one, between the crotchet at G, and the fillet at C, and the fore finger upon the outside of the point F, so that this part of the crotchet may be held between the fore finger and the middle one, whilst he passes it up through the pelvis, to get beyond the basis of the skull.

This being done, that part F G of the crotchet, must be kept close to one side of the child's neck, whilst the fillet at C D E, is kept at a distance from it, by spreading out the thumb and fingers; and then it may be shoved by degrees over the basis of the skull. The crotchet being still held by the left hand, between F and G, the end A of the fillet must be pulled tightly by the right hand, whereby the other end of it, which envelopes the shank of the crotchet B, will slide up to G, or higher if required, until the part which is to be taken hold of is sufficiently environed.

In this case, he may either extract by the fillet alone, or by both together, the outer end of the fillet being rolled about the crotchet at K,

K, whilst with his left hand he guides the basis of the skull through the vagina, to prevent its being hurt by any angles or edges of the bones.

Should this method be used to bring down a foot, as directed in Chap. IV. all possible care must be taken not to injure the ankle, either by pressing it much by the crotchet, or compressing it violently by the fillet.

If the child's body is distended with air, or water, &c. causing such an obstruction, as to threaten a separation of the neck also, the handle of the embryulcus may be cautiously passed up, and fixed on either of the axillæ, in order to bring down a scapula; which being done, the delivery may be effected. In doing this, however, the point F must be kept back from the pubes, so that it may not hitch upon that bone as the extracting force is applied.

How to act when the body is distended with air or water, &c.

Plate VIII.
Fig. 1.

Should a separation of the neck ensue, leaving the body of the child entirely above the brim of the pelvis, the best method I can think of, (and I am joined in the same opinion by a practitioner of great experience) is to pass up the hand and bring down the feet. But then, if there be any sharp points or edges of bones, where the separation happened, they must be removed as carefully as possible, lest the uterus be hurt as the body is turned round. These particulars being observed, and the body extracted till the abdomen arrives within the pelvis, if the swelling is still so great as to prevent its coming wholly forth, the perforator must be conducted cautiously in the hollow of the operator's hand, as directed in §. IV. till its point is close to the child's abdomen, into which it must then be passed, to give vent to the air and humours, which being done, the delivery may be finished.

When the neck separates.

In cases where the superior strait of the pelvis measures only about two inches, the use of the embryulcus, as above directed, may perhaps appear to some not sufficient for the work. I must own, that a pelvis so narrow as this, has not occurred in my practice; yet, when

I consider the method which Dr. Kelly used, I cannot but think it would be advisable in such cases to apply the embryulcus, as soon as the orifices are sufficiently opened for the purpose; and extract a while with due caution. For, though the bones of the cranium will loosen, and the holds give way, in cases of so great a resistance as here must be expected; yet, by the use of the director and embryulcus, the texture of the brain will be broke, and some of it discharged; and, by the extracting force used, the head will be lengthened, and the diameter of its thickness diminished; consequently, when the loose bones are carefully taken away, and a reasonable time allowed afterwards for nature to make her utmost efforts, the remainder of the head will then be moulded or prepared for its passage: so that if either the handle of the embryulcus, or the blunt crotchet (Plate IX. Fig. 7.) be properly applied, the delivery may be effected.

I prefer these instruments to sharp crotchets; because, having no sharp edges, and their points terminating in rings, they may be turned about in the uterus, if required, till they can be properly applied; and, when fixed on the child, they will not tear away the hold so readily as sharp ones; consequently their use will be attended with less danger to the mother. I will allow, however, that their efficacy may appear doubtful in one case; that is, when the body has been extracted first, and the head remains so firmly fixed above the brim of the pelvis, as not to come forwards by manual assistance only. In this case, neither the blunt crotchet, nor the handle of the embryulcus can be properly fixed. But a sharp crotchet being passed up to the crown of the head (as Dr. Smellie directed) will fix, and penetrate the same: so that when the extracting force is applied, the hold will give way, and make an opening, through which a part of the brain will be evacuated; hence, the head, being now lessened, may be brought away. Besides this method of extracting by the common crotchet, Dr. Kelly has told me of one, which, I think, deserves our notice, as he has used it with success. It

It is this; the under jaw being pressed down, let an opening be made by the scissors quite through the os palati to the brain; then pass a blunt hook through this foramen, and fix it upon the basis of the skull; which being done, the head may be extracted.

Now this method appears to be much more eligible, than that of passing a sharp crotchet into the cavity of the uterus; yet, as such an opening can be made with scissors as will allow an application of a hook, I have hopes that the perforator and embryulcus may be used here, with even more advantage than either the scissors, sharp crotchet, or hook. But to return;

In all cases where the child presents right, and yet cannot be saved, I think waiting to let nature make her efforts, after the head is opened, as Dr. Kelly did, in the case above-mentioned, is rational practice; and therefore, if any operator should not like to open the head with the perforator, and extract a while at first by the embryulcus, as I have hinted, I would have him only open, and wait so long as it can be done with safety to the mother; but then I think this opening may be better made by an instrument said to have been invented by Dr. Orme, than by Dr. Smellie's scissors, as commonly used.

Lastly, Should the operator be called to a case where the body has been extracted, but where the neck having separated, the head is left in the uterus, he must pass his hand, and endeavour to introduce a finger through the foramen magnum, in the basis of the skull; which being accomplished, he must bring it to the brim of the pelvis, with the face towards one ilia; and, whilst an assistant makes a pressure, gently with both hands, on the outside of the abdomen just above the head, he may then extract, for by this method some have succeeded.

But if this is found to be impracticable, he must then endeavour to pass the swivel of the embryulcus through the foramen, whilst an assistant

How to extract the head when left behind the body.

assistant keeps the head down, as above directed. If the swivel can be got through, and then turned transversely, the hold will be so firm that he cannot be foiled, provided he extracts according to the cautions and directions given.

Plate IX.
Fig. 7.

But if the foramen is so small as not to admit the swivel, the handle A (or one end of the blunt crotchet) must be fixed on any part where a hold can properly be taken.

If there is occasion to open the head, it must be placed with the crown or vertex towards the center of the pelvis, then kept down by an external pressure, as above directed, whilst the operator passes his left hand, and applies the perforator.

When the head is opened, he must always take care that the uterus be not injured by the sharp edges or angles of the bones; and then extract either by the instruments above recommended, or by the common crotchet, as the operator finds most safe and convenient. Though to speak my mind freely, I would never have the sharp crotchet used, unless it be in the hands of an experienced operator, and then only in such cases of difficulty as have now been mentioned,

C H A P. IX.

O F H Y S T E R O T O M Y.

W H E N parturition could not be effected through the natural passages, either by nature or by art; or when a woman died undelivered in the latter months of pregnancy, an operation by the Greeks, called *Hysterotomia*, and by the Latins *Sectio Cæsarea*, was recommended; and likewise performed in different nations. It consisted in making an incision through the mother's abdomen and uterus, extending about six or seven inches in length, obliquely between the navel and ilium. Whether this operation was ever successfully performed on the living subjects amongst the ancients seems uncertain; but it is positively asserted to have been done with success several times by the moderns, in different countries of Europe. Having however not seen it performed, when this work was first put to press, I consulted Dr. Hunter and Dr. Mackenzie, and Mess. Ranby and Middleton, who all assured me that they neither had seen nor heard of its being done in London, either in their time, or in that of their acquaintance, who had been in practice above forty years before them; so that an instance of it had not happened in a city which contained above a million of people, during ninety years and upwards. On this account I did not then give any description of it, but referred the reader to Heister and Smellie. Since that time, I am very sorry to find that it has been performed several times in different countries, without success; and that, Mr. Sigault, and other eminent practitioners in France, have set on foot the division of the symphysis pubes as a substitute for it. This practice also being found, not only much more painful, but in every other respect attended with as ill success as the former, is, so far as I know,

very

very justly exploded. Those events are undoubtedly very discouraging! But shall we therefore abandon Hysterotomy? and leave such unhappy women as cannot be delivered by any other discovered means, to certain misery and destruction! No, let us rather endeavour still to improve it; and, although it may not be allowed to any one to go far; yet new means may be found to produce better effects.

§. II. In my first edition, I gave, by a note, the opinion of my late friend, Dr. Hunter, concerning the place where he thought best for making the external incision upon, viz. along the linea alba, the bladder being first emptied, as thereby the branches of the hypogastric arteries would be avoided, and the intestines no obstruction to the operation. I now find by Dr. Hamilton's account, in his Outlines of Midwifery, second edition, Page 347, that Professor Monro, at Edinburgh, has described in his lectures Hysterotomy, in a manner, which seems to me, so accurate and judicious, that I shall here transcribe it in his own words:

“ By this operation, is understood an incision made first into the
 “ cavity of the abdomen, and then into the uterus, in order to extract
 “ a foetus. If the person on whom we are to perform it has been
 “ killed by an accident in the last month of pregnancy, or has died of
 “ a fever, we need not be very exact about the incision, but must
 “ make it as quickly as possible. If however we are to operate on a
 “ living person, we ought not to attempt the operation, if she has
 “ ever on any former occasion been delivered of a child; for that is a
 “ sure proof that the natural opening is sufficiently large. Even if the
 “ os uteri be not fully dilated, it will be better for the patient to have
 “ it dilated forcibly, than to have this operation performed, which is
 “ attended with the most imminent danger.”

“ Next we ought strictly to examine the state of the bones and of the
 “ soft parts, lest we imagine that the bones prevent the delivery;
 when

“ when perhaps the soft parts only may be in fault. We may also
 “ presume that there is a sufficient wideness in the bones of the pelvis,
 “ if the patient is not observed to have deformity in the other parts of
 “ the body, as a deformity rarely occurs in the pelvis without rickets,
 “ or a curvature in the spine; though in a few cases this may happen.
 “ But after all these circumstances have been attended to, and the opera-
 “ tion is determined, next let us consider the proper steps to be taken in
 “ it. We first empty the intestines, the rectum, and vesica urinaria,
 “ that the patient may not be disturbed too soon after the operation;
 “ and that the size of the bladder may not interrupt it. We then lay
 “ the patient in an horizontal posture, that the intestines be not pushed
 “ down between the abdominal integuments and uterus. In making
 “ the incision, we must avoid the large arteries in the containing parts.
 “ If it were to be extended far outwards, considerable branches of the
 “ circumflex might be divided; if inwards, the epigastric; so the best
 “ place is between the recti muscles, or upon the outside of the rectus.
 “ The last place is most frequently preferred, and we there readily get
 “ into the uterus. By this means, indeed, the uterus must be divided
 “ towards its side, where the vessels enter and are most considerable;
 “ but we choose the outside of the rectus, because of the vesica urina-
 “ ria being in danger of contracting inflammation from the incision.
 “ Except the danger of wounding the small turns of the intestines,
 “ there is no great difficulty in performing the operation; yet several
 “ cautions are to be observed. Operators have not been aware of the
 “ causes of the danger; and we have more favourable accounts of the
 “ operation than we ought to have. We shall find in practice, that
 “ we shall be more frequently disappointed than we could imagine
 “ from the reports of authors, who have only mentioned the fortunate
 “ cases. In this City the operation has been performed five times, and
 “ always without success, tho’ some of the women, before the operation
 “ were in ordinary health. The great danger, I am persuaded, arises

R r

from

“ from the admission of the air, as well as from the parts divided ; and
“ I have repeatedly found, in making experiments upon animals, that if
“ the air was let in upon the abdominal bowels for a few minutes,
“ without any farther injury, the animal often dies; and always re-
“ covers with the utmost difficulty : And this still more readily hap-
“ pens, if a considerable quantity of red blood be extravasated within
“ the cavity, which produces a most violent inflammation. Therefore the
“ surgeon is not to go at once into the cavity of the abdomen ; but
“ should first divide the skin and muscles, and leave the peritoneum
“ entire until the bleeding from the vessels has entirely ceased ; the
“ danger in that way, I find, is very much lessened. We then open
“ the peritoneum, making first a small incision, and observe if the uterus
“ is contiguous ; if it is, we divide it with caution, and the assistant,
“ by making a moderate pressure, hinders the air from getting into the
“ general cavity of the abdomen. The discharge of blood from the
“ uterus is smaller than we would expect. We then cut the membranes,
“ separate the placenta to extract the foetus, discharge the waters,
“ and as soon as the foetus and secundines are removed, the uterus con-
“ tracts of itself. Then let the surgeon pass his hand into the cavity
“ of the uterus, and with one or two fingers open the os uteri, that
“ the blood, naturally discharging into the cavity of the uterus from
“ the wound, may pass readily out by the vagina. We then shut the
“ wound ; and, instead of leaving an opening for the discharge of mat-
“ ter, we trust to absorption ; for I constantly find, that a very close
“ future contributes to the cure : So I would sew the containing parts of
“ the abdomen with the glover’s stitch, or interrupted futures, at three
“ quarters of an inch distance, making the needles pass through the
“ skin and part of the muscles, but not within the cavity, leaving the
“ peritoneum entire ; or, if there is a considerable effusion of blood and
“ water, let us stitch all but the under part, introduce into it a soft
tent,

“tent, and cover the whole with a comprefs. The patient is to be kept
“on a ftrict antiphlogiftic regimen during the cure.”

I am highly pleafed with the above defcription, and fully admit of its meriting the greateft attention. Yet, humbly hoping that it may be judged excufeable in any one, to throw out fuch hints as may but even feem in a very fmall degree ufeful to the prefent fubject, I fhall here offer what occurred to me lately on reading two cafes; one publifhed by Profeflor Hamilton, and the other by Dr. Andrew Douglas. The former of thefe two gentlemen, in his Outlines of Midwifery, Page 344, fpeaking of a cafe, wherein he found the uterus had been ruptured by the child; fays, “The uterus was ruptured at the fuperior lateral part of the cervix; and the rent continued downwards to the very edge of the os tinæ;—that he reduced fome portion of the intefines, which had forced through the wound of the uterus, even into the vagina;—That he had an opportunity of examining how amazingly the rupture was diminifhed by the contraction of the uterus, foon after the extraction of the child;—That there was a difcharge of matter on the cloths from the fifth day, which gradually leffened;—and that her recovery was nearly as good as if no extraordinary accident had happened.”

Dr. Douglas, in his cafe, fays, “The uterus feemed to have been ruptured tranfverfely, on the *lower* and *fore part*, fome diftance above where the vagina is connected with it; and it was more contracted in its fize than I thought poffible, in the few hours which had elapfed, fince the accident. On the 12th of September, 1784, this woman was delivered;—The hemorrhage was not greater than is ufual in a common labour;—On the 15th ſhe had voided her urine freely and regularly from the day of her delivery; but, having had no ſtool, the Doctor very judiciously advifed her to take a folution of cathartic falt. —On the 17th ſhe complained of great forenefs and pain from ilium to ilium, her pulſe being at 100 with a degree of fullnefs, and an ap-

“ pearance of a tendency to a delirium, he had her bled to eight ounces;
 “ and directed her to take small doses of the solution of the cathartic
 “ salt, with a few drops of laudanum every two or three hours;—On the
 “ 18th bad symptoms were abated; and her recovery was so remarkable,
 “ that on the 27th of October, she walked above half a mile to the
 “ Doctor’s house; on the 10th of January 1785, she continued well;
 “ and, about a week after the menses returned.*”

Now what occurred to me from contemplating the above cases, and which I think applies to this operation, is as follows : I would have the incision made through the uterus, transversely on its anterior side, as near the cervix as not to injure the bladder ; avoiding as much as possible the division of the larger branches of the hypogastric arteries : and, this aperture being made of a sufficient largeness, then to pass the end of a male catheter through a puncture made in the membranes to draw off the liquor amnii, &c. so that an effusion thereof may not gush into the general cavity of the abdomen. If these few particulars are adopted, and Professor *Monro*’s directions, in all other respects strictly observed, I should hope that better success would attend *Hysterotomy*. As to their practicableness, I have consulted *Mr. Hunter*, and he admits them fully.

§. II. The mode of operation having been considered, it next follows to ascertain, as far as we can, those cases, wherein the necessity of it becomes evident. In the last chapter, I hope, it appears, that the dimensions of the pelvis may be taken by the operator’s hand; and that I did admit the necessity of *Hysterotomy*, whenever the passage proved so narrow as the sixth dimension, or nearly so; that is almost an
 inch.

* See his observations on an extraordinary case of a ruptured uterus. Page 19.

inch and a quarter. And, notwithstanding all that has been advanced on this subject, I am still of opinion, that, if there is not found an opening of the pelvis sufficient for the admission of two fingers, to guide and apply an instrument so effectually on the child as to extract it with safety to the mother, Hyfterotomy is the best chance to save her life.

Doctor Osborne, in a Treatise on laborious parturition, has given a history of the case of a woman, whom he delivered by the crotchet, in the year 1776; and whose pelvis, if I mistake him not, he confines to the following dimensions;—the distance between the angle of the sacrum and symphysis Pubes, to only three quarters of an inch;—the aperture on the left side of the said angle, in length to the ilium, about two inches and an half; and its width to only three quarters of an inch; The aperture of the right side to rather more than two inches in length; and in breadth at the middle about an inch and three quarters, from whence it became gradually narrower towards the ilium and projection of the sacrum. “ He says, I have endeavoured to demonstrate, “ that it (meaning the child) may be safely extracted by the crotch- “ et wherever there is a space equal to one inch and an half from pubes “ to sacrum; dimensions much less than what have unvariably been “ supposed to require the cæsarian operation, even in the latest and “ best books.

Here I must suppose that the Doctor had never read what was said in the preceding chapter, or that he did not think my book one of the best: But, taking it in either sense, am happy his patient did well. I most sincerely wish to avoid the lessening of any one's merit; and am always sorry when obliged to differ in opinion from any of my Profession, more especially so, out of respect to an eminent Lecturer on Midwifery; but, this point, seeming too serious a one to be silent on, I must declare, that I think Dr. Osborne was mistaken in his dimensions of this woman's pelvis. Nay, although I have the happiness

X of hands as small, and fingers as strong as most men, and am not very unskilful in mechanics, yet, in a space so narrow as he describes, I verily believe, that neither myself or any person of the greatest judgment and expertness, could guide a crotchet, and apply it so well on the child, as to extract it with safety to the mother.

I lately asked a very ingenious practitioner in midwifery, who did examine this woman before the Doctor began the operation, whether the dimensions of the pelvis were taken as I had described in my book? to which he replied, that they were not to his remembrance: I then requested to know, how he and the other gentlemen who also examined her, could be certain that the pelvis was so small as Doctor Osborne had described? to which he very candidly answered, that to him and them it felt very narrow, but to affirm that it was exactly as the Doctor had said, was more than he could do. But to return.

Some perhaps, notwithstanding what has been said, may think, that confining hysterotomy to a space within even two inches is too great a restriction; and it would be so, if such latitude might be granted as seems to have been formerly taken: But this is not to be allowed, for there is too much reason to believe, that it was performed on such as do not appear to have been either deformed, or of an under size, as for instance, several Queens: The case of Jane Seymour, Queen to King Henry VIII. of England, seems a proof of this. The necessity of having an heir to inherit Kingdoms, which were in danger of falling under a foreign power, has been urged as an excuse for taking such liberties with the lives of those unfortunate Queens. I say unfortunate; for, had they lived now, I think it is more than probable, that under such circumstances, both their own lives, and those of their children, would have been saved.

Besides the case here treated of, there are others which require to be assisted by an incision, whilst the mother is alive; as for instance:

First, when nature makes an effort to cast forth an extra uterine foetus, either through the parietes of the abdomen, or through the

+ Nothing like a good haast when it can
be conveniently done!!
Who does this good Mammidwife expect would
trumpet for him, so well as himself?!

anus or perinæum, &c. especially when attended by a suppuration, then an incision may be made according as the operator finds it most proper for the safety of the patient.

Secondly, When nature endeavours to bring forth an extra-uterine foetus at the completion of pregnancy, by forcing it on through the pelvis, down between the vagina and rectum, an incision then being made through the inferior posterior part of the vagina, or where the operator finds most convenient, would in all probability succeed much better than hysterotomy*.

§. II. When

* Dr. Kelly has given us a case (see the London Medical Observations, vol. iii. page 44.) which explains this so well, that I shall beg leave to quote him.

"In the year 1756, I was desired (says the doctor) by Dr. Crawford, to go with him to see a patient he had been called to three days before, who appeared to be in labour, and had been attended by a midwife three or four days, before he was sent for.

"On passing a finger into the vagina, the head of a child was plainly felt, and so far advanced into the pelvis, that it seemed to require but two or three pains to bring it into the world; but, on a deliberate examination, the following peculiarities made the case appear quite singular.

"First, Although the head was so far advanced into the pelvis, as to be but the length of a finger-joint from the fourchette, yet, the os tincæ was situated close to the symphysis of the pubes, and so high up, that it was very difficult to reach it; and, so far as this difficult access would permit a judgment to be formed of the state of this part, it seemed to be not at all dilated, and its labia, were more hard as well as more prominent than could be expected, as the woman thought herself arrived at the full time of pregnancy.

"Secondly, If the fore-finger of one hand was passed per vaginam, and that of the other per anum, the child's head was plainly felt, and even the sutures distinguished between them both; but, per vaginam only, no more than one side of the head could be felt, which was that side which pointed towards the pubes.

"Thirdly, On feeling the abdomen externally, the upper limits of it's tumefaction were not so regularly circumscribed, as is usual in the latter months of pregnancy.

"These circumstances maturely considered gave room to suspect, that the child was not in the cavity of the womb. For although it often happens, that the head descends very low into the cavity of the pelvis, while the os uteri not only remains undilated, but likewise is situated so high up, that we reach it with difficulty; yet in these cases the os uteri generally, if not always, points towards the sacrum, whereas, in the case under consideration, it was so close to the pubes, that the finger was pretty much pressed between that and the tumor made by the blood, before it could be reached.

"By the second peculiarity, the head did very clearly appear to be got down between the posterior part of the vagina and the anterior part of the rectum; for though there is no natural cavity there to receive it, yet it is well known, that these two membranous parts, which make the partition between one passage and the other, are connected together by a cellular membrane, which may very easily give way to the pressure of any solid part protruding against it, with that degree of force, which the head of the child in this case did; especially, as it was continued for so long a time as eight days, during which, the pains were strong and frequent.

"There

§. II. When a woman, in the latter months of pregnancy, happens to die very suddenly, the child still being thought to be alive, hysterotomy is then commendable, provided it be known for certain that
the

"There is naturally a deep sort of cavity between the rectum and the back part of the uterus, made by the peritonæum, descending pretty low and forming a kind of pouch, in which a portion of the small intestines, when the uterus is not pregnant, is commonly lodged; and, sometimes, the intestines themselves, by pressing hard against the peritonæum, at this most depending part of the abdomen, gradually stretch this membrane so as to deepen this cavity much, and thereby dissect, as it were, the back part of the vagina from the fore part of the rectum, and by these means form that tumor in the vagina, which is called a *hernia vaginalis*,

"In this case, the head of the child seemed to have produced the same effect.

"No circumstance so strongly indicated the head being in this situation, as that of not being able to pass a finger between the tumor made by the head, and the back part of the vagina; for in every natural case, where the head is so far advanced into the pelvis, as it was in the present, even though the os uteri be not dilated, there is always a vacant space between the tumor made by the head, and the back part of the vagina; but here there was none.

"The third peculiarity above-mentioned served to corroborate that opinion of the case, which the first and second gave rise to; for, as the patient was a very thin woman, had the uterus been distended in the usual manner, the circumscribed border of its fundus might have been distinctly felt through the parietes of the abdomen.

"The friends of the poor woman, who were very pressing to know why we did not deliver her, were given to understand, that we were afraid she could not be delivered at all, as the child, instead of being in the womb, appeared to be in that part of her belly, from whence nature had provided no passage; however we promised to consider of the case, and if it appeared practicable to relieve her by any method that might occur to us we would do so; but, for the present, could do nothing more than order something to raise her spirits, and abate the severity of her pain.

"As people are seldom unanimous in their opinions, when cases of so uncommon a nature occur, we did not determine upon a method likely to succeed till too late to be put in practice.—She expired in the night of the succeeding day.

"The night after we had given the discouraging account of her case to the people about her, who little understood, and less believed what was told them; as the pains continued strong, another midwife was called to her, who, upon examining, assured the patient, and all present, that she would be delivered very speedily, and she hoped likewise, with all desirable safety; and accordingly ordered what was necessary for the reception of the child to be got ready immediately. What served to confirm these hopes was a small red discharge, which soon after came on, and was regarded as a promising appearance; but this was produced by the midwife's having mistaken the posterior part of the vagina, against which the head strongly pressed, for the membranes, which she endeavoured to break by scratching them with her finger nail.

"These mistakes were both natural, and perhaps excuseable; and my sole reason for mentioning them is to point out how near the birth the child's head seemed to be.

"Being informed of the fatal conclusion, we were very solicitous to know if our opinion of the case had been justly formed, and went to ask the husband's permission to make the necessary enquiry for that purpose; he was gone out, and had left positive orders, that she should not be opened. After waiting a considerable time, expecting his return, and hoping to prevail over his prejudice by the reasonable arguments made use of on such occasions, we
at

the mother is dead. I say certain, for history gives an instance of this operation having been performed whilst the mother was only in a deliquium ; so that some difficulties arise even here : for supposing a
surgeon

at last persuaded the women, who were left in charge of the body, to permit us only to shew them, that the child was not in the womb, whereby both they and the husband would have the satisfaction of knowing, that his loss had not been owing either to negligence or ignorance.

“ As this consent was but faintly and with great reluctance given, and as we expected every moment, the husband’s return, who might treat us very roughly, for acting counter to the orders he had left, we did not make the examination with that deliberation and accuracy we could have wished ; however, we gained great satisfaction in regard to the principal objects of our enquiry. The discoveries made, on opening the abdomen, I shall relate in as concise a manner as their nature will permit.

“ The uterus, instead of being the first and largest part in view, was but just raised above the os pubis, and had the usual appearance of a womb in the unimpregnated state. The cause of this situation was very apparent, as we found the head of the child settled quite low down in the pelvis, between the vagina and rectum, just as we expected ; the head, in descending, had obliged the uterus to rise above the pubes. The feet of the child reached very near the scrobiculus cordis, but were not visible till the omentum and a large portion of the small intestines were turned aside. The child was not large, neither was it so small as some children at the full time ; the cuticle was entire, and there were not, either in colour, smell, or any other respect, the least signs of putrefaction, by which we judged it had died much about the same time with it’s mother.

“ The placenta adhered mostly to the peritonæum, on the right side of the abdomen, extending from the umbilicus to the ilium ; and it’s posterior edge adhered to a part of the mesentary, it’s inferior part was attached to the right ligamentum latum uteri, from whence it extended upwards towards the ribs. It was attached more firmly to these parts than the placenta in general is to the uterus ; and in proportion to the size of the child, was twice as large in it’s surface, as might have been expected.

“ We should have been extremely glad to have examined the appendages of the uterus, especially the fallopian tubes ; but our hurry and confusion, from being so disagreeably circumstanced, prevented us ; and we were too closely watched to take any thing away. Therefore we were not able to discover, whether or not the child had burst one of the fallopian tubes, after being some time contained and nourished therein, as most commonly happens with extra uterine fœtus’s. But, from circumstances, it seems most probable, that the ovum, when first disengaged from the ovarium, had fallen to the depending part of the abdomen, without being received into the tube.

“ The circumstances which countenance this opinion, are principally these :

“ In the first place, the woman had never been affected in that manner which women are, when one of the fallopian tubes is ruptured by the growth of an ovum detained in it’s canal, such as being suddenly surprized with a tense of something bursting within them, attended with violent pain, and a discharge of blood from the uterus. She had, indeed, her menstrual discharge, but this was regular, in point of time, though deficient in quantity, especially, in the latter months ; she had not been affected with any particular pains, till she thought herself in labour. Her principal complaints, before that, were a great bearing down backwards, as she expressed it, and a difficulty in going to stool.

“ In the next place, the child was alive, and plainly felt to move, during the time she seemed in labour : whereas, in cases where the tube is burst, I believe it commonly happens, that the child dies soon afterwards, and long before it has acquired it’s full growth.

“ And

surgeon in readiness when the mother dies, will not the immediate performance of the operation appear indecent, if not cruel? And if he waits but an hour or two, will not the child be lost? Facts evince, that children in such cases survive their mothers but a very short time. Some have affirmed, that they have seen the child move the day after the mother's death; but it appears from the observations of the present practitioners, that this is very rarely, if ever the case. However, if the mother dies suddenly, the child being felt lively just before; the placenta yet adhering, consequently no flooding; and some degree of circulation being still maintained between it and the child, the operation may be performed, I think, with propriety, as soon as it is certainly known that the mother is dead.

"And, in the last place, the attachment of the placenta to the peritonæum affords a very strong presumption for entertaining the opinion above-mentioned, for, had the ovum remained any considerable time in one of the tubes, its vascular part or placenta, would have adhered to the internal surface of the tube, and, although upon the tube's bursting, the fœtus might have been disengaged from it, yet the placenta would either have remained adhering to the tube, or would not have been attached at all to any part; but the adhesion (as has been already observed) was uncommonly firm. That the peritonæum was the part to which it did adhere is a fact we could not be deceived in, for, being an unexpected circumstance, it engaged our particular notice.

"It may not be amiss to observe, that this situation of the placenta seems to corroborate the present prevailing opinion, that a fœtus in the womb is not nourished by a transmission of red blood from the mother to the child, but by nutritious juices absorbed from the maternal blood by the placenta.

"I cannot help pointing out another particular relating to the placenta in this extraordinary case. I mean its being so very large in proportion to the bulk of the child. Nature here furnished an instance of her care and attention; for, as the peritonæum, destitute of large blood-vessels, cannot be so well adapted to the purpose of transmitting nourishment to a child, as the internal surface of the uterus, nature, in order to compensate that disadvantage, gave the placenta a much greater extent of surface than common, and thereby a larger scope for performing its office.

"The only method that gave hopes of success in the above case, was the making an incision through the posterior part of the vagina, against which the head so strongly pressed, and which in consequence of that pressure was become extremely thin. The child might by such means, have been easily extracted; and it is likewise very probable, that the placenta would, in time, have disengaged itself and procured an exit through the same opening. But how soon, or how well, this aperture might have closed, and prevented a dangerous descent of the intestines, mere conjecture cannot determine.

N. B. This woman had miscarried two or three times, but never went her full time before.

A N E W

A N E W

SYSTEM OF MIDWIFERY.

P A R T IV.

OF DISORDERS SOMETIMES SUBSEQUENT TO DELIVERY.

THE disorders here meant, are floodings and faintings, after-pains, a suppression of the urine, a diarrhœa, the milk fever, imposthumations of the breasts, a suppression of the lochia, and a miliary fever.

These complaints or diseases being treated of in the order in which they are mentioned, we shall then subjoin a few observations concerning some diseases to which the bladder and uterus are liable.

C H A P. I.

OF FLOODINGS AND FAINTINGS AFTER DELIVERY.

SOME women flood so much immediately after the birth of the child and secundines, as not only to bring on faintings, but the most imminent danger; especially if their constitutions are naturally very lax, or much debilitated by some previous illness.

If there is a tolerable degree of strength, an easy respiration, and a pulse pretty firm, though quick, the hæmorrhage is not to be much dreaded, for it usually abates in an hour or two. The patient, after being faint, falls into a doze, and ere long the pulse rises, and not uncommonly becomes as full and strong as if no such loss of blood had happened.

§. II. Nevertheless, in all such cases, whether the patient be strong or weak, the abdomen must be immediately encompassed with a napkin properly folded, the ends being laid over one another, and pinned so tightly as to make a due compression.

For this purpose, a girdle would answer better, if it could be always had in readiness. What I mean is a slip of fine new flannel, about an ell long and seven inches broad; the edges are not to be hemmed; four (or more) buckles may be fastened equally distant, about nine inches from one end; and as many straps, about the same distance from the other; so that when this girdle is applied smoothly round the abdomen, the necessary compression may then be made by buckling them tighter, as the uterus and muscular parts contract.

The steams of hot vinegar may be applied to the nose, a glass of wine may be given, and then the following draught; after which the patient must be kept as quiet as possible.

R Con-

R Confectionis cardiacæ drachmam dimidiam,
Tincturæ thebaicæ guttas viginti,
Aquæ alexeteriæ simplicis fescunciam,
————— spirituosæ,
Syrupi balsamici,
Singulorum drachmas duas.
Misceantur, et fiat haustus statim sumendus.

Should the flooding continue very copiously, notwithstanding these means have been used, cloaths may be dipt in cold vinegar, and applied over the loins and whole abdomen.

But if this be found insufficient also (which but rarely happens) the operator must pass his hand into the cavity of the uterus, and extract the coagulations with due caution and tenderness: for this being done, the uterus will have liberty to contract; consequently the orifices on its inner surface will gradually close, and the hæmorrhage abate; especially if this contraction be assisted by a compression externally at the same time, not only by the bandage, but by the operator's hand, applied a few minutes directly upon the uterus.

It can hardly be supposed, that any objections will be raised against this method of relieving the patient by extracting those coagulations which keep the uterus distended; but if any such should arise, I have this to say, that I am convinced of its propriety by its real success. Therefore, if it be done when only absolutely necessary, in order to save the life of the patient, as here meant, I cannot but approve of it; and I am joined in the same opinion by others of much experience.

C H A P. II.

OF THE AFTER-PAINS.

TO parturition succeed those spasms in the lower part of the abdomen, which are attended with uneasy sensations, commonly known by the name of after-pains. In this affair, the uterus is principally concerned; for, to regain the state which it had before pregnancy, it contracts very quickly, especially at first, as may be observed when there is occasion to apply the hand on the outside of the abdomen, in order to assist the expulsion of the secundines, &c. I say at first, for a few hours being elapsed, it contracts slower in proportion as the density of its structure recovers; so that about the end of the third week it is usually at a stand.

Though these spasms are very natural at this time, yet they do not produce equally the same effects in different constitutions: because some women feel but a very few pains, some have a moderate degree of them, and others are violently afflicted with them even during several days.

This difference may probably arise from the degree of irritability peculiar to each constitution; as also from some large thrombos, or from a part of the membrana decidua, &c. which, remaining in the uterus, increase the stimulation.

Now, whilst these conatus uterini are moderate, the design of nature is answered; for thereby the uterus not only regains its former state; but the contents, which served to excite the stimulation, being excluded as the cavity of the uterus lessens, the patient is consequently so much relieved, as but very seldom to require any medical assistance.

But when they continue in a violent degree, some attention is necessary, for they not only disturb, but retard those discharges which at this time ought to be encouraged.

In this case, care must be taken to keep the patient very quiet, and in as temperate and equal degree of warmth as possible ; and to supply her properly with such aliments as these following :

Barley water, oatmeal gruel, caudles, chicken, beef or mutton broths ; and when the appetite begins to recover, some eatables may be allowed, especially if the patient has a particular aversion to liquid diet.

As to medicines, sedatives and sodorifics are the means which commonly give the most relief ; the following, therefore, are proper :

I. R. Mixturæ oleosæ cum gummis ℥ij.

Tincturæ thebaicæ guttas xx.

Misce, et fiat haustus statim sumendus, et 4ta vel 6ta, quaque hora repetendus, tinctura thebaica omissa.

In a short time after this draught is taken, the patient is generally easy. This being obtained, if the perspiration and the lochia require to be encouraged, then let the following draught, or a similar one, be taken occasionally.

II. R. Pulveris contrayervæ compositi scrupulum unum,

Aquæ alexeteriæ simplicis fescunciam,

Tincturæ castorei,

Syrupi croci, singulorum drachmas duas ;

Misce, fiat haustus

If indurated fœces are collected in the rectum, so as to keep up the pains by pressing against the uterus, &c. glysters may be used at any time after the third day ; for these do good, not only by their warmth and emolliency ; but, upon their return, as the patient endeavours to exonerate the rectum by contracting the abdominal muscles, if any thing is confined in the cavity of the uterus, it is usually expelled, and then the patient is relieved.

But should this lodgement of the fœces extend so high as not to be sufficiently removed by the glysters (which sometimes is the case) then such aperients as those recommended in Part III. Chap. III. §. III. may be given, till the whole tube be freely disburthened.

This being done, not only the uterus will be eased, but the circulation also through the whole viscera.

It must be observed, however, that upon the use of aperients, or even of emollient glysters, about the fourth or fifth day, a very copious flow of stools will sometimes ensue. This happens most commonly when a collection of liquid fœces lie ready for being expelled at that instant ; or when the patient is either of a lax habit of body, or of very irritable bowels.

This evacuation, however, is for the most part salutary, and ceases of itself in a few hours. But if it proves so great as to cause faintings (as sometimes happens, probably from the pressure being so suddenly taken off the viscera) then a compression must be made about the abdomen as soon as possible ; and such a draught administered as that directed in the preceding chapter ; which being done, the patient will soon be relieved, and then recover as well as if no such hurry had happened.

C H A P. III.

OF THE OBSTRUCTION OF URINE AFTER
DELIVERY.

AN obstruction of urine happens sometimes not only after difficult births, but after very natural ones; the patient being healthy, and of a good form and size; and, as it hath appeared to me, some women are not so much sensible of it as others: so that, if care be not taken to give timely and proper relief, they are more liable to be injured; because the bladder may be kept so long upon the stretch, as greatly to weaken, if not destroy its power of action. Besides, the repletion of the bladder being so excessively great, will not the natural influx of the urine be retarded, the ureters, in consequence, overfilled and distended? And will not the kidneys be affected also? I am inclined to think that such inconveniencies may ensue.

In order, therefore, to guard against them, the patient should always endeavour to evacuate the urine as soon after parturition as she is able and never wait above six hours in expectation of an inclination to it. If twenty or thirty hours have been elapsed without relief, the catheter must be used in the manner described in Part II. Chap. III. §. III. and repeated once or twice in twenty-four hours, till the vagina, the neck of the uterus, and likewise the bladder have recovered themselves. This, for the most part, will be effected about the fourth day.

The urine drawn off is usually very high coloured, the more so the longer it is retained. If neglected forty hours, and the quantity exceeds three pints, the patient is commonly in great danger; especially if, in the operation, the catheter is tinged of a blackish colour.

C H A P. IV.

OF THE DIARRHOEA.

IT is not unusual to find a diarrhœa, or frequency of liquid dejections, attending the latter months of pregnancy, go off upon delivery without any medical assistance, and the recovery prove as perfect as if no such illness had happened.

Nor is it uncommon for a woman, enjoying a good state of health, to be seized with this complaint in the month of child-bed.

In the latter, however, it is not always so favourable as in the former, especially when happening very soon after delivery; for, at this time, the patient cannot bear any large evacuation. Now, as some particular attention must be paid to this; and as such an office comes most commonly to the share of the obstetrick practitioner, we shall offer some directions concerning it.

The most common causes of this disorder are, food not properly digested, a redundancy of the milk, or a flow of it upon the intestines, an obstruction of the lochia, a surprise, or any violent agitation of the mind, &c. In order to distinguish these rightly, the preceding and present circumstances of the case must be well considered.

§. II. If meat (especially such as is not easily digested) has been eat very plentifully at any time within thirty hours after parturition, it is not unusual for the patient to feel first an oppression about the region of the stomach, and then pains in the bowels; succeeded on the following day, or thereabouts, with small griping stools, which afterwards become more thin and copious.

When it arises
from indigested
aliments.

These circumstances occurring, without any violent commotion of mind, or previous ill habit of body; the lochia continuing also in the usual way, and the breasts having an appearance of being replenished with milk, it then may be concluded, that the diarrhœa is in consequence of some crudities, particularly undigested aliments, remaining in the primæ viæ.

In this case, though the pulse is sometimes pretty quick, yet there is little danger, provided proper means are timely used. I say timely; for as this disorder must continue whilst the bowels are stimulated by those acrimonious fæces, the curative indications are to cleanse the intestinal tube as soon as possible; and, at the same time, to support the patient with proper aliment, and other medical aid, lest faintings quickly ensue, or the natural discharges be so greatly disturbed, as to lay a foundation for future evils.

To effect this, supposing the diarrhœa comes on so early as the third day after delivery—(Before which time, I do not advise the use of purgatives)

I R Salis cathartici amari drachmas sex,
 Aquæ menthæ piperitidis simplicis
 uncias duas,
 Spiritus lavendulæ compositi
 drachmam dimidiam;
 Misceantur, et fiat haustus statim sumendus.

During the operation of this draught, the patient must take plentifully of oatmeal gruel, in order to replenish and cherish the intestines; the whole abdomen must be carefully compressed either by a napkin, or by the girdle, as mentioned in Chap. I. and about four hours afterwards, or when the operation of the medicine is ended, she must take the following draught, or a similar one.

II R

II R Confectionis Paulinæ drachmam dimidiam,
 Aquæ cinnamomi tenuis fescunciam,
 Tincturæ Castorei,
 Syrupi croci singulorum drachmas duas;
 Misceantur, et fiat haustus.

Now let the diet consist chiefly of the following ingredients :

Boil ground rice in water to the consistence of caudle, or rather thicker, a little cinnamon being added towards the end of the coction.

Then add a sufficient quantity of double refined sugar and white wine, to make it agreeable to the palate.

Of this aliment she may take about half a pint, as often as her appetite requires ; and if she is thirsty, she may drink intermediately a thin decoction of the rice. This method being pursued about twelve hours, without any return of the diarrhœa, the bowels remaining quiet and easy (as usually is the case) she may then have recourse to chicken broth, and afterwards to meat, if she desires it.

In the former part of my practice, I usually began the cure of this disorder by a dose of rhubarb. But of late years I have used the sal catharticus amarus. My reason for preferring the latter to the former is, because it has seemed, to me, to operate quicker and more effectually than the other, especially whilst the humours were very crude or acrid. Nay, I have known diarrhœas carried off entirely by one dose of it, though they began with violence, some so early as the second day after delivery. And, if I mistake not very greatly, fevers also which attended, and even appeared threatening by their symptoms, have been nipped in the bud by this means.

However, if the primæ viæ are not sufficiently relieved by the first dose, the flux being still troublesome ; such a quantity of the salts

may be repeated on the third or fourth day, as seemeth suitable to the strength of the patient, and other circumstances of the case; or rhubarb may now be employed. During the immediate efforts of this dose, the patient must be supplied first with oatmeal gruel, afterwards with the rice prepared as above directed, with only this difference, that red wine may be used instead of white. The abdomen also must be duly compressed; and then, as soon as the operation of the medicine is finished, or even before, if the patient grows faint, the following draught may be given.

III R Mixturæ oleosæ cum gummi uncias duas,
Tincturæ thebaicæ guttas viginti;
Misce, fiat haustus statim sumendus, et quarta quaque
hora repetendus, tinctura thebaica omissa.

By these means, the disorder is most commonly carried off, unless it be kept up from another source than the one assigned. If so, the remainder of the cure will be understood by what shall be said in the sequel.

From the
milk.

§. III. The diarrhœa, which proceeds from the milk, happens most commonly when the breasts, after having been well filled, assuage. When it begins on the fourth or fifth day, without any previous illness, or any error committed in the use of the non-naturals, the perspiration and the lochia going on well, the milk may be considered as the most probable cause of it.

In this case, if the pulse is pretty full, and not extremely quick, nor the patient very faint, the evacuation commonly proves rather salutary than otherwise; so that but seldom any remedy is required besides vegetable diet, or broth prepared in the following manner:

Boil

Boil a chicken, the skin and fat being carefully taken off, about forty minutes in a gallon of water, seasoned agreeably with salt and mace. During boiling, the scum must be taken off as it rises.

Of this broth, commonly called chicken water, the patient may drink very copiously, especially if the dejections be very frequent.

Mr. Burnet, in Grosvenor-Street, (an experienced surgeon and man-midwife, to whom I was first obliged for this hint) informs me, that he has cured several patients by this means only, without having recourse to medicines. I have seen its salutary effects also, and therefore can recommend it from my own experience.

But if, notwithstanding the use of these aliments, the diarrhœa should continue with violence, a dose of the *mixtura oleosa cum gummi* may be given every three or four hours, the *tinctura thebaica* being added or not as the case requires. Or should there be much reason to believe that the bowels are greatly vellicated or oppressed with morbid humours, a gentle aperient, like the one above directed, may be given previous to the use of the mixture.

§. IV. When it appears, upon a strict enquiry, that the dejections are neither in consequence of a former illness, nor of any error committed in regard to diet; there being also no sudden recession of the milk from the breasts, nor signs of an obstruction of the lochia: but some wet or damp linen having been used, or the patient having exposed herself imprudently to the cold air, &c. soon after which a diarrhœa ensued; it then, I think, is evident that the grievance arises from obstructed perspiration. This being known, the patient must be kept a little warmer than usual, whilst the following draught or a similar one is taken, in order to bring on a diaphoresis as soon as possible.

From obstructed perspiration.

OF THE DIARRHOEA.

IV R Pulveris bezoardici scrupulum unum,
 Radicis contrayervæ semi-scrupulum,
 Tincturæ thebaicæ guttas sedecim,
 Aquæ fæniculi fescunciam,
 — cinnamomi spirituofæ,
 Syrupi simplicis, fingulorum drachmas duas;
 Mifceantur, et fiat haufus ftatim fumendus, et
 quarta quaque hora repetendus, tinctura thebaica
 omiffa.

Left * any offensive matter fhould be accumulated in the inteftines, it may be neceffary to add fifteen or twenty grains of rhubarb to the firft draught.

Rice gruel or chicken water may be drank at firft; and, as foon as the fkin begins to grow moift, fome white wine whey. But if the pores have been fo greatly contracted as to render this attempt ineffectual, a fever commonly fupervenes foon, and fometimes an obftruction of the lochia alfo; which happening, the reft of the cure is to be conducted differently: for which reafon, we fhall refer the reader to Chap. VII.

From violent
 agitations of
 the mind.

§. V. When the diarrhœa is, in confequence of a furprize, or of any violent commotion of the mind (knowable by fuch circumftances having preceded without any other evident caufe concurring) the patient may be relieved by the ufe of draught fecond, fection fecond; and then fuch medicines as are foft and cephalic, as for example;

V R Mixturæ oleofæ cum gummi fescunciam,
 Tincturæ valerianæ simplicis drachmas duas;
 Mifce, fiat haufus quarta quaque hora fumendus.

* Fordyce's elements of the practice of phyfick, part 2, 2d edition, page 107.

But

But, as hath been said before, it being hardly possible to lay down invariable rules for the cure of any one disease, we must observe in general, that, whatever cause it may be thought to proceed from, if the primæ viæ have been first cleansed from the noxious humours, and notwithstanding this, and the use of the other means above recommended, the dejections continue so violent as to threaten the patient with immediate destruction, a respite must be obtained as soon as possible, and for this purpose the following mixture may be given.

VI. R Cretæ præparatæ drachmas duas,
 Pulveris amyli unciam dimidiam,
 Aquæ cinnamomi tenuis uncias sex,
 ————— spirituosæ,
 Syrupi simplicis, singulorum unciam unam;
 Misceantur, et fiat mixtura cujus capiat cochlearia
 tria, vel quatuor post singulas sedes liquidas.

An injection also, consisting of about a quart of rice gruel, may be thrown up, and repeated once or twice if needful, in order to cleanse the rectum and lower part of the colon. This being done, the following enema may be used :

VII R Amyli drachmas duas,
 Solve coquendo in aquæ puræ unciis sex,
 deinde adde
 Tincturæ thebaicæ guttas
 Viginti et quinque;
 Misce, fiat enema statim injiciendum, et pro re
 nata repetendum.

It must be observed also, that during the course of this disorder, if the stomach is affected with a regurgitation of bile, or with an accumulation of any other kind of morbid humour, so much as to cause retchings and vomitings, a gentle puke, consisting of two or three pints of camomile tea, or of warm water alone may be given, even so early as the third or fourth day after delivery; and, should these not operate so well as to relieve the stomach, the diarrhœa still continuing, then the pulvis radicis ipecacoanhæ may be given, ad grana tria vel quatuor; by which means, the patient will commonly find relief.

And finally, should there be much distention and pain in the bowels by restraining the stools, the head hurried, or the fever increased, the alvine tube must then be unloaded occasionally with a gentle aperient, as a drachm or two of the salt recommended, or ten or twelve grains of rhubarb; after which, the liberal use of the chicken water and oily mixture may be continued so long as there is occasion.

We may observe here, that purgings in child-bed that have continued long, especially if attended with much fever, prove too often fatal.

C H A P V.

OF THE MILK FEVER.

THE fever here meant, is that which happens when the milk has been generated so very copiously as to cause the breasts to swell much, and become extremely painful, occasioning a quick and sometimes very full pulse; attended with anxiety, great pain in the head, sometimes wanderings, cold rigors, and great thirst.

Or when the natural progress of the milk (described in Part III. Chap. II. §. V.) has been greatly disturbed by misconduct; as for instance, when the patient has ate too plentifully, used liquids, or medicines which have been too heating, imprudently exposed her arms and breasts, &c. to the cold air, so as to obstruct perspiration; suffered herself to be long coſtive, or to be kept too warm either by many coverings, or by too hot a room, &c. whereby the brisk circulation, which at this time is natural, and therefore necessary, becomes perhaps increased so much as to change the circulating fluids into a very ſtazy ſtate, bringing on danger of ſuppurations in the breasts, an obstruction of the lochia, miliary eruptions or worse consequences.

§. II. Now to guard against these evils, the patient should be kept Cure. extremely quiet, and properly warm, that a moderate degree of moisture may always be maintained upon the surface of the whole body. Barley water, or any other soft liquid, which is not too heating, may be drank freely: panadas, &c. may be used. But all kinds of animal food ought to be avoided as much as possible, till the fever

abates, and the appetite begins to recover; at which time, such as are of easy digestion may be allowed, though sparingly at first.

§. III. As to externals, none should be used with a view to repel the milk; for if they take such effect as to drive it suddenly back into the blood, the vascular system will be over-charged, upon which a train of evils may probably ensue. Or should they not have this effect (as often is the case) they, notwithstanding, serve only to irritate, and confirm the obstructions within the breasts.

Such, as are emollient and moderately warm, give most relief, and therefore are eligible, as for example :

I R Olei amygdalarum dulcium;

Aquæ lavendulæ,

Singulorum sesqui-unciam ;

Misce, fiat embrocatio, qua illine mammas calidè

bis terve in die.

The emplastrum commune spread upon leather is very commonly used, and is probably serviceable, by keeping the skin warm, and helping, in some degree, to prevent its being too much distended. Notwithstanding these applications, it is sometimes necessary to have the breasts drawn now and then, either by a child, an adult, or by glasses (as observed Part III: Chap. III. §. III.) until the influx of the milk abates.

§. IV. With respect to internals, soft and sudorific medicines are proper ; as for example, spermaceti, mixtura oleosa cum gummi, pulvis contrayervæ compositus, spiritus mindereri, &c. Care must al-
ways

ways be taken to keep the alvine tube free and easy; first by glysters, and then by gentle purgatives, as those recommended in Part II. Chap. IV. §. IV. and in Part III. Chap. III. §. III.

By these means, the breasts usually assuage in a few days, the fever subsides, the patient grows easy, and gradually recovers health.

But if the case has been neglected, or ill-treated at the beginning, or if, notwithstanding all suitable means have been used, the disorder still gains ground, as sometimes happens, and there is an appearance of an abscess, the cure then may be conducted in such a manner as shall be directed in the following chapter.

C H A P. VI.

OF ABSCESSSES IN THE BREASTS.

WHEN, by reason of the milk, the breasts grow extremely painful, swelled and hard, either wholly or in part, circumscribed tumors or lumps having formed, with the skin upon them appearing of an inflamed red colour, an abscess is portended.

§. II. In this case, I have never been able to prevent a suppuration, and therefore am of opinion, that it will generally prove best not to counter-act it. Accordingly, the natural excretions are not to be increased; the quieter the patient is kept the better, and the diet which is used should be of the nutritive kind.

A bread and milk poultice, some white lily roots being bruised and well mixed with it, and a little olive oil spread over that side which is to come next the skin, may be applied moderately warm to the part affected, and renewed twice or thrice a day. If, by this means, the maturation does not come forward so soon as might be expected, then the indurated part must be covered with the following plaister.

I R Emplastri communi, cum gummi quantum
sufficit, super alutam extensum.

When the pain is so extremely violent as to fatigue the patient and to prevent her sleep, an anodyne should be given at bed-time, and repeated every night until the tumor is ripe, provided it neither disagrees with her, nor interferes with the time of the lochial discharges; the latter however will but seldom occur.

The maturation of these imposthumations is sometimes so very slow, that a practitioner of good experience may find it difficult (at least for a time) to know with any certainty whether it will be effected or not.

But, whilst the case continues doubtful, there cannot be an error, I presume, in proceeding as above directed. If the tumour disperses, it will be necessary to purge, as often as the patient's strength, and other circumstances will admit.

If it be likely to grow schirrous, not only purging, but bleeding also is necessary. But if maturation takes place, the fever and pain abate, the urine deposits a copious sediment, the red colour of the skin disappears, the hardness goes partly away, the fluctuation is to be felt, and a portion of the integuments points or usually protrudes from the depending part of the tumour; hence, if the patient's strength is but tolerably good, this part soon bursts; and sometimes sloughs, or casts off to about the breadth of a six-pence. The pus consequently issues forth, and may be duly discharged afterwards by stroking the skin gently all round, from the basis of the tumour towards the aperture, before the application of each poultice.

In a few days, the inner sloughs, or diseased glands, &c. separate from the sound parts encompassing the cavity; and granulations, of what may be called new flesh, begin to rise. These granulations being touched once or twice a day with any of the fluid terebinthinate balsams moderately warmed, and the above cataplasm, or any other emollient one, applied immediately to the part affected, without lint or any thing else intervening (unless the cavity be very deep; if so, a little lint being dipped in the balsam, and applied loosely within the wound, is sometimes necessary as well as the poultice) the cure is usually performed in a short time.

But when the patient is very weak, or has an ill habit of body, and the imposthumation does not break of itself so readily as could be wished, then to guard against such an absorption of the pus as might
ensue,

enfue, and contaminate the circulating fluids, an opening must be made by the lancet in the part which points, sufficiently large for giving a free discharge to the whole contents of the abscess; this being done, the cure may be conducted as above directed.

§. III. Before I finish this chapter, I must beg leave to observe, that no tents, or any of the escharotick medicines should ever be used in the cure of these imposthumations. For experience teaches, that soft and easy applications have always the best effects. Therefore, when the abscess is opened, whether by nature or by art, the cure may be effected as above directed.

By this method, the sloughs, or diseased glands cast off, the discharge vents freely; and being directly absorbed by the poultice, the edges of the aperture, and the surrounding skin, are not in the least irritated by its acrimony; the new granulations are cherished, the limits of the cavity lessen, and the indurated glands, about the basis of the tumour, become gradually relieved, by the assistance of this emollient focus.

When the abscess is incarned, or so well contracted as to require only cicatrization, the poultice and digestive are then to be laid aside, and the cure to be effected by the application of pledgets covered with ceratum epuloticum, or unguentum tripharmacum, &c. a gentle purge or two being given as the case requires.

If pimples come out upon the skin (as commonly happens by the application of the poultice) they, being dressed by either of the above cerates spread upon lint, commonly dry, and then scale off in a few days.

§. IV. I must farther observe, that the use of poultices, and liquid vulnerary balsams, is equally as effectual in the cure of abscesses, which form in any other part of the body; nay, even in that of the
most

most stubborn ulcers on the legs. This I can aver from much experience: and as I am convinced of its being preferable to the common method of dressing with pledgets, I cannot but confess how much I was pleased (in 1764) when Mr. Hunter told me his method of treating green wounds.

It was this, that whilst he attended the army in Portugal, he had used emollient cataplasms alone, not only in the cure of simple recent wounds, but in that of amputations also; and had found the effects to be always as follows, viz. there was less uneasiness to the patient than by the common method, the digestion came sooner on, the inflammation went sooner off, the granulations rose kindly, the edges cicatrized; and in short each cure was, by this application alone, performed always sooner than those were which had been treated in the common way.

This was the first hint I ever had of treating green wounds in this manner. I have seen its effects since, not only in simple and contused wounds, but in amputations also, by which I am now convinced of its superior advantages; especially if the surface of the wound be well covered with some liquid vulnerary balsam before the application of each cataplasm.

I should have observed before, that a foment prepared with the emollient and discutient herbs, applied to the affected breast twice or thrice a day, is often found efficacious in removing the inflammation, dispersing the tumour, and consequently preventing suppuration, if timely used at the beginning of the disorder.

WHAT falls under our present consideration, is not only a suppression of the lochia, but what is called in the (northern parts of this Island) the weed ; and in the southern parts, by some the lochial, and by others the puerperal fever. Not to take up the reader's time with a nice disquisition to ascertain which of these appellations can convey the best idea ; I shall only remind him, that a fever, without a suppression, is not uncommon in the month of child-bed ; but a suppression, as far as I can discover, is never to be found without a fever : yet, (if distinct) which is prior ? or whether the suppression is not, in some cases, the primordial, and in others, the consequent, it is not easy to determine*. However, leaving the decision of these points to future discovery, I shall, in order to inform the student as well as I can, take notice first of the most probable causes ; secondly, of the diagnostics ; thirdly, of the prognostics ; and fourthly, of the method of cure, giving some histories afterwards by way of elucidation.

§. I. First then, the causes, which may be assigned, are very different, to wit, a peculiar miasm in the atmosphere ; an admission of cold air, so freely to the surface of the body, as to excite rigors, &c. an ingress of such air into the cavity of the uterus, whereby the blood may be suddenly thickened or congealed, &c. an over-heated or hurried circulation, by which the uterine vessels may be over-charged or suffocated ; every thing capable of bringing on an inflammation in the substance of the uterus, or in any part so connected with it, as to affect

* Those sentiments stand as I first wrote. Since that time, the world is much obliged to Mr. Charles White, F.R. S. and Surgeon, at Manchester, for an excellent work published by him, in 1773 ; wherein he has treated of this fever much more fully than I durst venture to do, from my own experience at that time. In page 134, speaking of an obstruction of the Lochia, he says ; "it is not a primary disease, the effect is mistaken for the cause."

affect it; any violent or instantaneous agitation of mind; or whatever is capable of exciting irritation. A suppression of the lacteal secretion, as also a diarrhœa may contribute to it.

§. II. Every physician should previously know, and keep in mind *Diagnostics.* the several circumstances peculiar to women in childbed; more especially such as occur in the first week, that he may be able to distinguish rightly natural symptoms from those which are morbid. Although a cursory view of these circumstances hath been given in Part III. Chap. II. §. V. yet I presume an exact detail of them here, as appeared to me in a late case, will not be deemed improper.

The woman was of a large size, inclining to be corpulent, and aged 34. Her catamenia used to return every 24th or 25th day, continue copious two days, the third grow less, and by the fourth be entirely off. She had born seven children. When she suckled, the menstrua appeared also as above described.

On the 11th of October 1768, she was delivered, at ten in the morning, of the eighth child, which was small, but lively, and proved healthy. The placenta was of a proportionate smallness, and came away very naturally in about fifteen minutes after the child, during which time, by the appearance of the linen, about four ounces of blood were discharged.

Immediately upon the expulsion of the secundines, a cloth weighing of troy, ℥iii. 3vi. was properly applied;—in fifteen minutes, the patient's apparel and bed being put to rights, it was taken away and weighed ℥iii. 3vii. gr. xx.

The second of the same weight being applied directly, viz. at fifteen minutes after ten, weighed at eleven ℥iv. 3ivfs.

Third of the same weight, applied on the removal of the second, weighed at twelve, ℥iv. 3v. gr. lv. The after pains had been frequent and pretty forcing all this time.

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Fourth, of $\text{℥} \text{iii.} \text{℥v.}$ applied at twelve, weighed at two in the afternoon, $\text{℥} \text{iv.} \text{℥} \text{iii.}$ gr. xx;—one clot weighing $\text{℥} \text{ifs.}$ now discharged;—pains not quite so urgent;—lochia all this time of a florid red colour.

Fifth, of $\text{℥} \text{ifs.}$ gr. lix. applied at two, weighed at four $\text{℥} \text{ii.}$ gr. xv;—pains less frequent;—lochia still very red;—about one third part of the three first cloths wetted, and about one half of the two last.

Sixth, of $\text{℥} \text{i.} \text{℥v.}$ gr. ix. applied at four, weighed at six $\text{℥} \text{ii.}$ gr. xxx.

Seventh, of $\text{℥} \text{i.} \text{℥v.}$ gr. ix. applied at six, weighed at eight $\text{℥} \text{ii.} \text{℥} \text{i.}$ gr. xx.

Eighth, of $\text{℥} \text{ii.} \text{℥} \text{ii.}$ gr. v. applied at eight, weighed at ten $\text{℥} \text{ii.} \text{℥v.}$ gr. lvi;—cloths half wetted;—colour beginning to change pale. Since delivery the patient had discharged urine four times, reddened by mixing with the lochia as it came away;—she had some sleep;—the skin was moist;—the after-pains neither so frequent, nor so forcing;—the pulse rather fuller than it had been all day, and some what quicker than the natural standard.

Ninth, applied at ten, removed at four in the morning of the second day, was not weighed, but, judging from its appearance, together with that of the apparel and bed linen, about $\text{℥} \text{i.} \text{℥} \text{ii.}$ of lochia were looked upon as discharged;—colour rather paler.

Tenth, of $\text{℥} \text{ii.} \text{℥vii.}$ gr. x. applied at four, weighed at seven $\text{℥} \text{iii.} \text{℥} \text{iv.}$ gr. xxiv;—a clot weighing $\text{℥} \text{ii.}$ discharged;—the patient had slept in the night, and perspired kindly; no thirst;—pulse full, not quick.

Eleventh, applied at seven, removed at ten, was not weighed; but the lochia contained computed at $\text{℥} \text{iv.}$;—colour a very pale red;—a little pricking in the breasts, as if the milk was beginning to generate.

Twelfth, of $\text{℥} \text{iii.} \text{℥vi.}$ applied at ten, weighed at one in the afternoon $\text{℥} \text{iv.} \text{℥} \text{i.}$ gr. x;—about one third wet;—colour nearly as the last.

Thirteenth,

Thirteenth, applied at one, removed at four, was not weighed, but the quantity of lochia it contained estimated at $\text{℥}iii$;—the uterine efflux began now to smell somewhat like the lymphatic discharge issuing from incised wounds before they digest;—colour more pale;—pulse at seventy;—some milk in the breasts;—the child allowed to suck;—the patient's appetite good;—in every respect easy;—one stool.

Fourteenth, of $\text{℥}iii$. $\text{℥}iii$. gr. lv. applied at four, weighed at seven $\text{℥}iii$. $\text{℥}vi$. gr. xix;—about a tenth part wet;—of a very pale reddish colour;—smell as before, but rather more fœtid;—The pulse at seventy-five;—no thirst;—the breasts pretty well filled with milk;—a considerable quantity of urine discharged, not tinged with the lochia;—skin still moist.

Fifteenth, applied at seven, removed at ten, was not weighed, but calculated to have contained of lochia $\text{℥}ii$;—was a little stained with a reddish cast;—fœtid as the last.

Sixteenth, of $\text{℥}iii$. $\text{℥}iv$. gr. viii. applied at ten, weighed at two in the morning of the third day $\text{℥}iii$. $\text{℥}vi$. gr. xxx;—nearly half wet with lymph only, there being scarce any reddish cast;—more fœtid.

Seventeenth, of $\text{℥}iii$. $\text{℥}i$. gr. iv. applied at two, weighed at ten $\text{℥}iii$. $\text{℥}v$;—about half wet;—no red colour;—smell offensive, even at a yard and half distance;—the patient had slept well the night before;—a diaphoresis over all the body;—pulse at eighty;—breasts pretty full, though often drawn by the child;—a little pain in the head;—thirsty;—easy at stomach.

Eighteenth, of $\text{℥}ii$. $\text{℥}v$. gr. xxx. applied at ten, weighed at four in the afternoon $\text{℥}iii$. $\text{℥}i$;—as fœtid as the last;—head-ach moderate;—breasts very full of milk;—pulse at eighty-eight;—more thirsty;—a moisture over the whole body;—urine as before;—one stool.—Yesterday and to-day, without my knowledge, the patient had eat for dinner pickled pork, and drank beer,

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Nineteenth, of Ziii . Ziv . gr. xxxv. applied at four, weighed at ten Ziv . Zii . gr. xi;—about one third wet;—scarce so fœtid;—colour the same;—pulse at seventy-six;—not so thirsty;—tongue clean and moist;—head easy;—breasts as before;—skin agreeably moist;—urine turbid, of a whitish branny colour.

Twentieth, of Ziii . Zi . gr. lvi. applied at ten, weighed at five in the morning of the fourth day Ziii . Zv . gr. xv;—about a third part wet;—no red colour;—not more fœtid.

Twenty-first, of Ziii . gr. xxxiv. applied at five, weighed at ten Ziii . Ziii . gr. xxx;—more than one third wet;—colour and fœtor as before;—slept well last night, notwithstanding the head had ached, and the breasts had been very full and uneasy;—perspiration the same;—pulse at sixty-five —no thirst;—urine of a whey colour, depositing a copious branny sediment.

Twenty-second, of Ziii . Ziv . applied at ten, weighed at four in the afternoon Ziii . Zv . gr. xxv;—about a quarter wet;—colour the same;—not so fœtid;—head and breasts easier;—appetite good;—chicken eat for dinner;—pulse at eighty;—not so thirsty as yesterday;—one stool.

Twenty-third, of Ziii . Ziv . gr. v. applied at four, weighed at ten Ziv . gr. xxx;—colour and fœtor as before;—pulse small and so quick as to beat one hundred in a minute;—some ale had been drank without my knowledge;—a little pain in the head;—skin rather dry;—other symptoms much the same as before.

Twenty-fourth, of Ziii . gr. xv. applied at ten, weighed at five in the morning of the fifth day Ziii . Ziv , gr. x.—about a fourth part wet;—of a reddish cast;—the beginning of last night restless;—grew easy about twelve upon a sweat breaking out;—some head-ach;—breasts full and very uneasy;—chilly for about a minute;—slept this morning.

Twenty-fifth, of Ziii . Zii . gr. ix. applied at five, weighed at ten Ziii . Ziii . gr. i;—about a sixth part wet;—still fœtid;—colour the

the same;—a little pain in the head;—breasts easier;—pulse at seventy-five;—a gentle moisture on the skin;—tongue clean and moist;—no thirst, but the appetite not so keen;—urine whey coloured, turbid, and with less sediment.

Twenty-sixth, of ζ ii. ζ v. gr. lv, applied at ten, weighed at four in the afternoon ζ iii. ζ i. gr. ix;—near half wet;—colour and fœtor as before;—head and breasts more easy;—pulse at ninety;—very little thirst;—some chicken eat for dinner;—no strong liquor drank; but I had reason to think the caudle used was too strong, and high seasoned. Besides she yesterday sat up till her bed was made, for the first time since delivery, after which her skin was not so moist as before. This, together with the errors in diet above-mentioned, are the only reasons I can give for the late variations of the pulse.

Twenty-seventh, of ζ ii. ζ vii. gr. ix. applied at four, weighed at ten ζ iii. ζ iii. gr. li:—colour and fœtor the same;—pulse still at ninety;—skin a little moist;—urine made at seven, inclined to a dark citron colour, depositing some sediment;—again at nine, colour the same, but no sediment.

Twenty-eighth, of ζ iii. ζ iv. gr. xxx. applied at ten, weighed at seven in the morning of the sixth day ζ iv. ζ ii. gr. xv;—half wet;—colour and fœtor as before;—slept better last night than since delivery;—skin agreeably moist;—head and breasts very easy;—no thirst;—appetite better;—pulse at sixty-three;—one stool.

Twenty-ninth, of ζ iii. ζ v. applied at seven, weighed at ten ζ iii. ζ vi;—symptoms as before.

Thirtieth, of ζ iii. ζ i. applied at ten, weighed at seven in the evening ζ iii. ζ iv. gr. l;—eat mutton for dinner and drank small beer;—sat up an hour;—pulse at seventy-six;—a little thirsty;—skin moderately moist;—urine high coloured, depositing some sediment.

Thirty-first, of ζ iii. ζ i. applied at seven, weighed at three in the morning of the seventh day ζ iii. ζ vii. gr. xxv:—colour somewhat red.

Thirty-

Thirty-second, of ȝi. ȝvii. gr. x. applied at three, weighed at ten ȝii. ȝiii. ;—not so red;—slept well most of the last night;—pulse at sixty;—urine of a good citron colour;—head and breasts easy;—appetite good;—diaphoresis less.

Thirty-third, of ȝii. ȝiii. applied at ten, weighed at two in the afternoon $\text{ȝii. ȝvi. gr. lvi.}$;—colour the same;—less fetid.

Thirty-fourth, of ȝi. ȝv. gr. xxxv. applied at two, weighed at eight ȝi. ȝvii. gr. x. ;—in every other respect as before.

Thirty-fifth, of ȝiii. gr. ix. applied at eight, weighed at five in the morning of the eighth day $\text{ȝiii. ȝvi. gr. xvi.}$;—half wet;—high coloured, but not red

Thirty-sixth, of ȝii. ȝii. applied at five, weighed at ten ȝii. ȝii. gr. xl. ;—discharge still of a darkish colour, and more thick in consistence.

Thirty-seventh, of ȝiii ȝiv. gr. xl. applied at ten, weighed at four in the afternoon ȝiii. ȝv. gr. x.

Thirty-eighth, of $\text{ȝii. ȝvi. gr. xxxiv.}$ applied at four, weighed at nine $\text{ȝii. ȝvii gr. xxiv.}$

Thirty-ninth, of $\text{ȝiii. ȝiv. gr. ix.}$ applied at nine, weighed at ten in the morning of the ninth day ȝiv. ȝii. gr. i. ;—about half wet;—colour reddish;—smell less fetid.

Forty,—Forty-first, applied between this time and eight in the evening, not weighed, but, by appearance, the lochia contained were proportionable to the last, viz. ȝiv. gr. xxx.

Forty-second, of ȝiii. gr. x. applied at eight, weighed at ten in the morning of the tenth day ȝiii. ȝiv. gr. v. ;—half wet;—colour as before.

Forty-third, of ȝi. ȝv. gr. xxx. applied at ten, weighed at six in the evening ȝi. ȝvi. gr. x. ;—colour more pale;—not so fetid.

Forty-fourth, of ȝi. ȝv. applied at six, weighed at two in the morning of the eleventh day ȝi. ȝv. gr. xxxi.

Forty-

Forty-fifth, of $\text{z ii. } \text{z i.}$ applied at two, weighed at ten $\text{z ii. } \text{z i.}$ gr. xxx.

Forty-sixth, of $\text{z iii. } \text{z i.}$ applied at ten, weighed at four in the afternoon $\text{z iii. } \text{z i.}$ gr. xxii.

Forty-seventh, of $\text{z iii. } \text{z ii.}$ applied at four, weighed at ten in the morning of the twelfth day $\text{z iii. } \text{z iv.}$;—colour pale;—now not fætid.

Forty-eighth, of $\text{z iii. } \text{z v.}$ applied at ten, weighed at four in the afternoon $\text{z iii. } \text{z iv.}$ gr. lvi. This cloth stained in one place only, about the breadth of half a crown. The loss of gr. iv. of its weight, I apprehend, was owing to its becoming drier by the heat of the patient, than when it was applied; especially as at this time she had no diaphoresis.

Forty-ninth, of $\text{z ii. } \text{z vi.}$ gr. xxv. applied at four, weighed at ten in the forenoon of the thirteenth day $\text{z ii. } \text{z vii.}$ gr. xxi.

On the 14th day no lochial appearance;—the patient in every respect well;—the child had suckled during all this time.

There was no more discharge from the uterus till the beginning of the fourth week, when an efflux came on, of a good red colour, and so copious as to wet two clothes in twenty-four hours, each a little more than half wet; on the second day, one about half wet, and not quite so red; on the third another, neither so wet nor red; and on the fourth it was intirely off.

This discharge, in its appearance and time of continuance resembled exactly her ordinary menstrea. Such a flux about the end of the third or beginning of the fourth week, is not uncommon, especially in women who do not suckle, or whose lochia are but scanty at first.

OF THE SUPPRESSION OF THE LOCHIA.

A TABLE EXHIBITING THE QUANTITY OF THE LOCHIA
FROM THE ABOVE CASE.

Clothes.	Time applied.	Day of lying-in	Ounces.	Drachms.	Grains.
	Between the birth of the child, & that of the fe- cundines.	First Day.	4		
	Hours Min.				
N ^o . 1	- - - - 15	- - - - -	- - - - -	1	20
2	- - - - 45	- - - - -	- - - - -	6	30
3	1	- - - - -	- - - - -	7	55
4 } a clot included	2	- - - - -	2	2	20
5	2	- - - - -	- - - - -	3	16
6	2	- - - - -	- - - - -	3	21
7	2	- - - - -	- - - - -	4	11
8	2	- - - - -	- - - - -	3	51
9	6	- - - - -	1	2	
10 } a clot included	3	- - - - -	- - - - -	7	14
11	3	- - - - -	- - - - -	4	
	24	Total of the First Day.	12	5	58
		Second Day.			
12	3	- - - - -	- - - - -	3	10
13	3	- - - - -	- - - - -	3	
14	3	- - - - -	- - - - -	2	24
15	3	- - - - -	- - - - -	2	
16	4	- - - - -	- - - - -	2	22
17	8	- - - - -	- - - - -	3	56
	24	Total of the fe- cond Day.	2		52

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Clothes.	Time applied.	Day of lying-in.	Ounces.	Drachms.	Grains.
	Hours.	Third Day.			
N ^o 18	6	- - - - -	- - - - -	3	30
19	6	- - - - -	- - - - -	5	36
20	7	- - - - -	- - - - -	3	19
21	5	- - - - -	- - - - -	2	56
	24	Total of the third Day.	I	7	21
		Fourth Day.			
23	6	- - - - -	- - - - -	I	25
22	6	- - - - -	- - - - -	4	25
24	7	- - - - -	- - - - -	3	55
25	5	- - - - -	- - - - -	I	41
	24	Total of the Fourth Day.	I	3	26
		Fifth Day.			
26	6	- - - - -	- - - - -	3	14
27	6	- - - - -	- - - - -	4	42
28	9	- - - - -	- - - - -	5	45
29	3	- - - - -	- - - - -	I	
	24	Total of the fifth Day.	I	6	41
		Sixth Day.			
30	9	- - - - -	- - - - -	3	50
31	8	- - - - -	- - - - -	6	25
32	7	- - - - -	- - - - -	3	50
	24	Total of the sixth Day.	I	6	5
		Seventh Day.			
33	4	- - - - -	- - - - -	3	56
34	6	- - - - -	- - - - -	I	35
35	9	- - - - -	- - - - -	6	7
36	5	- - - - -	- - - - -		40
	24	Total of the seventh Day.	I	2	18

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Clothes.	Time applied.	Day of lying-in.	Ounces.	Drachms.	Grains.
	Hours.	Eighth Day.			
N ^o 37	6	-----	-----	-----	30
38	5	-----	-----	-----	50
39	13	-----	-----	5	52
	24	Total of the Eighth Day.		7	12
		Ninth Day.			
40 }	10	-----	-----	4	30
41 }		-----	-----		
42	14	-----	-----	3	55
	24	Total of the ninth Day.		8	25
		Tenth Day.			
43	8	-----	-----	-----	40
44	8	-----	-----	-----	31
45	8	-----	-----	-----	30
	24	Total of the tenth Day.		1	41
		Eleventh Day.			
46	6	-----	-----	-----	22
47	18	-----	-----	2	
	24	Total of the eleventh Day.		2	22
		Twelfth Day.			
48	6	-----	-----	-----	
49	18	-----	-----	-----	56
	24	Total of the twelfth Day.			56
		Thirteenth Day.			
50	24	-----	-----	-----	
		Total of the thirteenth and Part of the fourteenth Day.			

Notwithstanding the above calculation, it is not unusual for very plethoric women, who have large children with placenta in proportion, to discharge about ten or twelve ounces of blood between the birth of the child and that of the secundines, even if the time exceed not twenty or thirty minutes; nay, some lose near a pound: but, in both cases, the decrease, though gradual, is so very quick, that at the end of twelve hours, the quantity of lochia discharged is nearly the same as in the above table, viz. about $\text{z} \text{iv}$ in two hours.

It is also observable, that most women, the child and placenta being of the ordinary size, have about $\text{z} \text{viii}$ at the time of birth, the flux lessening as above stated.

On the other hand, in cases where the child has been dead in the womb any considerable time, as two or more days before delivery, it has seemed to me, that the quantity of the lochia has been less than that in the above table, and of a paler colour even at the beginning. Sometimes there has been scarce any redness at all, and yet the patient has recovered in the usual time without any fever which could be attributed to a suppression.

Now in case of a suppression, the lochia change very suddenly from their natural redness, appearing in some instances of a blackish or disagreeable dusky colour, and in others pale and frothy. Their quantity also is so suddenly diminished, that in a very few hours there is not a stain to be seen on the linen. The patient is seized about the same time with a cold shivering, commonly succeeded by a high fever; the pulse at first is quick, and for the most part very full; soon afterwards, in case there be no considerable return of the lochia, it usually becomes smaller, and then so extremely hurried, as to beat above an hundred and twenty times in a minute. In some cases, the rigor is immediately followed by a very profuse sweat. In others, especially such as end badly, there is but a partial diaphoresis, the skin being very hot, and, at most times, the greatest part of it very dry; the face is
some-

Signs of a
suppression.

sometimes flushed ; there is commonly a wildness in the countenance, and the head seems hurried ; the patient sometimes sighs and appears dejected ; there is an oppression about the epigastric region ; the respiration is quick, and in some cases difficult ; the tongue is usually dry, I say usually, for in some cases, especially such as terminate favourably, it is moist, and covered with a brownish fur ; the patient is thirsty, sometimes insatiably so ; the abdomen is swelled, commonly tense, and the hypogastric region very tender, especially near the os pubis, where the uterus may often be felt a little hard and bulky ; there is a weight and uneasiness about the region of the pelvis, sometimes a pain towards one ilium ; the breasts are always flaccid ; and for the most part there is a diarrhœa.

A late author * has mentioned a symptom, which I do not remember to have seen in this fever, viz. a vomiting of green and yellow bitter matter. The tension and tenderness of the abdomen have been laid down as pathognomonic symptoms of this disease. I must confess my doubts on this point ; for I have met with them early in the month of child-bed, the patient being feverish at the same time ; and yet, as appeared to me, the complaints arose only from an accumulation of indigested aliments in the primæ viæ ; since, by giving a purgative, which brought away a large quantity of very putrid fœces, they were entirely removed. Besides they are to be found in a miliary fever, as will be shewn in the next chapter.

Now, as to the appearances of the body after death, I am well assured by several practitioners in London, that of patients, who were seized, on the second or third day after delivery, with a high fever, and a suppression of the lochia and milk also, some died in less than twenty hours after the attack ; and others did not outlive forty, and though the progress of their illness was so very rapid, yet it was observed, on opening their bodies after death, that the abdominal viscera were

* See Denman's essays.

found always inflamed, particularly the intestines, some parts of which adhered together, and likewise to that portion of the peritoneum, which lines the abdominal cavity; and though the uterus often appeared inflamed, like the rest of the viscera, yet in many it seemed to have suffered least by this fever; and nothing was seen, giving the least reason to believe, it had been hurt in parturition. In the abdominal cavities of some, there was found a considerable quantity of a bloody serous fluid; and in others, a whitish mucus, gluing them together, and often a fluid similar to pus lying loose in the abdomen.

§ III. In regard to the prognostics; when the lochia are not entirely stopped, there being at least some lymph discharging; when the breasts have been replete with milk, and not prematurely deserted; when the diarrhæa is moderate; the pulse full, regular, and not extremely hurried, that is to say, not above a hundred; some moisture over all the body; the head not much hurried, nor any great oppression about the præcordia; the event will probably be favourable. Prognostics.

But, when they are suddenly suppressed, the red colour having totally disappeared, and the lymphatic part now discharging seeming not adequate to the quantity which should proceed from the uterus, in order to relieve its vessels, and give it liberty to regain its natural state; when that which remains is extremely fœtid, or appears frothy; when the patient has no milk in the breasts, but much oppression about the epigastric region; a very quick or difficult respiration, frequent sighings, tossings about in the bed, a great fullness of the abdomen, with a sensibility of pain about the hypogastric region, especially if, but gently touched; a hot dry skin, or but partial sweats; cold rigors, and the pulse very much hurried, even to an hundred and twenty or thirty, the event is doubtful, and greatly to be dreaded.

Nay,

Nay, indeed, should all or most of these symptoms appear on the second or third day (the sooner the worse) more especially, if the tongue also becomes black and rough, the thirst insatiable, the urine either very pale, or appearing like foul cyder with filaments in it, the diarrhæa violent in spite of all remedies, and the patient very delirious, the case proves generally, if not always, mortal.

Care.

§ IV. Though the causes of this disease are various (as enumerated in §. I.), yet, as seems to me, the curative indications are principally but three, viz. first, a timely diminution of the quantity of the blood, as the patient's strength can bear, in order to ease the circulation; secondly, an use of such other means as are most likely to take off irritation; and thirdly, a counteraction of the tendency, which this disease has to putrefaction, by proper antiseptics.

First, To lessen the quantity of the blood, venesection is the most eligible means, and I lay very great stress upon it, provided it be begun early, that is, soon after the attack, while the pulse is full, or before the viscera are much affected; for, if this opportunity be lost, the inflammation increases fast, the pulse sinks, becoming small, quick, weak, and at last irregular; so that bleeding now would be very injudicious.

Supposing then the suppression, and its concomitant the fever, to begin so early as the third day after delivery, the pulse full, and the diarrhæa moderate; let blood be taken from a large orifice to eight ounces. I prefer the veins of the arms to those of the feet, because, in general, the blood may be taken from the former with more certainty, as well as facility.

Secondly, In regard to medicines, emmenagogues and stimulants have been long and very commonly used in the cure of this disease. I rather think they do harm than good. Nor can I say much in behalf of blisters. I can with more confidence recommend emollients
and

and refrigerants, in the beginning of the cure; because I have generally seen better effects from the use of them, than from that of any other class of medicines whatsoever. Let the patient therefore take four spoonfuls of the oily mixture, with the gum, every four hours, and, by way of aliment, barley-water, oatmeal gruel, caudle, panada, &c. chicken water may likewise be used, in case the febrile heat is not so great as to contra-indicate it.

It is customary to give diet very hot to women in child-bed. I must own, I take this method to be a very bad one, not only in the cure of this, and every other inflammatory disease, but in that of others whenever the patient is inwardly parched with heat; because the fever, which is probably already too great, will be thereby increased. Besides, experience teaches, that liquids may be given nearly cold, with as much safety and advantage in the lochial fever, as in any other; especially when it runs very high, or the weather is very hot.

It is also common to advise the use of warm diet, and even plentifully, so that, whether there be any indication of an appetite or not, more is often given than the chylepoietic organs can properly digest. Now, should this be done in the present case, the patient must be injured.

When about writing the above, I was, by experience, led to believe, that cleanliness, pure air, cool drinks, lenient purges, and early venesection when the pulse was full, were all essential articles, in the cure of this disease. But wishing to know the sentiments of others upon these matters, I asked several of my friends, particularly Sir John Pringle, Doctors Hunter, Lewis, Mackenzie, and Harvie, who all declined giving any decisive answer; some even saying, that they knew nothing satisfactory about the cure. I was therefore obliged to give only my own; I say only, for, knowing that the common practice was then against me, I was afraid to write so fully as I wished: But on reading Mr. White's treatise, published four years afterwards, it gave me

great pleasure to find him, not only in the same opinion with myself, but that he had improved the subject greatly. But to return.

Tranquility of mind is another essential requisite for obtaining the end proposed, viz. appeasing irritation: care therefore should be taken to keep the patient free from company, or whatever will fatigue or cause uneasiness.

Thirdly, Of antiseptics, pure air seems to me the most essential. I am well informed, that this fever and obstruction occur more frequently in the lying-in-hospitals, than in private practice: what can this arise from, but the different states of air? This, in my opinion, is the cause: for though very great care is taken in those hospitals, yet as the apartments and furniture will imbibe some of the morbid effluvia arising from the patients, the air must be always more or less tainted.

Let the utmost care therefore be taken never to allow the patient to breathe any putrid steams arising from her own body, or that of any other. Cause the air in the room to be cooled and changed as occasion requires, by opening a door, a window, or both together; especially if the apartment be small or the weather very hot; observing also to keep the surface of her body, the face excepted, properly covered during those times, and indeed at others, so as to maintain but a very moderate degree of perspiration. The bed curtains should likewise be so far undrawn, as to leave its lower part quite open. See my *Friendly Cautions*, published in 1767.

A due attention having been thus paid to the management of the patient, to the state of the pulse, and primæ viæ at first setting off, the following mixture may then be taken:

I. R.

I. R. Mixturæ oleosæ cum gummi fescunciam,
 Succī limonum drachmas tres,
 Salis absinthii scrupulum unum;
 Misce, fiat haustus quartâ quaque horâ sumendus.

At any time, through the course of the disease, should there be a great redundancy of vitiated humours in the primæ viæ, exciting retchings and vomitings, as well as many liquid dejections, bleeding having been performed, as above stated, the stomach must be relieved by powder of ipecacoanha four grains, or, instead thereof, two drachms of the tincture, drinking about a pint of oatmeal tea after each rejection.

About two hours after this, the intestines may be cleansed also by Sal. Cath. amar. ʒss. or instead of it, pulv. rhæi gr. xv. vel ʒi. Such measures being taken (which, by the bye, I esteem of great moment to the patient) an anodyne may be given, and the oily mixture used either alone or with some of the salt of wormwood mixture, as occasion requires

If there be no diarrhœa, or if the patient be costive, (as but rarely happens in this case) the plan as above directed, may be observed, and the following enema used also.

II. R. Foliorum malvæ
 ————Matricariæ
 Singulorum unciam unam,
 Florum chamœmeli semiunciam, coque
 in aquæ fontanæ quantitate sufficiente
 ad uncias duodecim, colaturæ adde
 Olei olivarum uncias quatuor;
 Misce, et fiat enema pro occasione injiciendum.

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I have reason to believe, that if the method here proposed, is duly observed, the termination of this disease will often be found not only favourable, but speedy. But should it change from the inflammatory diathesis into a putrid one, in spite of all remedies, or should it be in such a situation, when the physician is called, the cure will neither be so easy, nor so certain. Nay, the danger of the case is too frequently proved by its event. However, things being in this state, I know not of any better method of cure, than what is commonly used in other kinds of putrid fevers. Concerning which it will be necessary for the student to peruse the writings of Huxham, Pringle, Monro, Macbride, and the very ingenious Alexander; but in preference to them all, Mr. White, on this subject.—Emetic tartar is now found to be of real use; James's Powder also, if properly given. And, to cleanse the intestinal Tubes effectually, calomel may be taken, with a lenient purge, as occasion requires.

§. VI. Now, accept the following cases :

In April 1768, I was called several times to a patient, who, being in the last month of pregnancy, and often seized with a violent pain in her bowels, thought herself in labour. The grievance was sometimes in the right hypochondrium, sometimes across the stomach, and at others over all the abdomen, attended with griping stools, and a forcing down, even so much, as to open the os uteri almost the breadth of half a crown. Glysters of the emollient kind were injected, and anodynes taken afterwards, by which means some relief was obtained. But, the complaints recurring, notwithstanding the alvine tube seemed sufficiently open, I concluded, that the abdominal viscera were affected, either by some vascular or glandular obstructions; especially as I had attended her in a case, which appeared to be of that kind, about two years before.

On

On the fifteenth, seven ounces of blood (which was very fizy) were taken from the arm; an emollient enema was injected; and, after its return, an anodyne given. By this means she continued easy a few days, and then the complaints returned as bad as ever. Thinking it necessary now to cleanse the tube wholly, I ordered a purgative (consisting of Sal. Cath. amar. \mathfrak{zvi} .) to be given on the twenty-fifth early in the morning, which procured three copious stools. About six the same evening, labour began; at seven I came, and found the os uteri very well opened, with the child's head presenting in the pelvis. In short, the pains being now of the right kind, and the child but very small, the delivery was completed naturally in less than an hour. I ordered an anodyne to be taken an hour after delivery; and in about three hours after that, the following draught,

III. R. Spermatis cæti soluti drachmam dimidiam,

Confectionis cardiacæ grana quindecim,

Aquæ alexiteriæ simplicis fescunciam,

—————spirituosæ,

Syrupi simplicis, singulorum drachmas

duas;

Misce, & fiat haustus sextâ quâque horâ sumendus.

Caudle, with a little white wine was allowed, as her appetite required, and barley water when thirsty.

On the 16th I found the pulse rather quicker than the natural standard; there had been one stool; the lochia were not copious, but their colour was good; and the bowels were easy; so that I desired the same plan to be observed, with only this alteration in the draught,
viz.

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viz. that the confectio cardiaca should be left out, and aqua pulegii simplex substituted instead of the aqua alexiteria simplex.

On the 27th, about ten at night, I received a message desiring me to come, as soon as possible, she being thought to be dying. I hastened thither, and found her tossing about in the bed, and complaining of a violent pain in her belly. She had had several small griping stools. There was no milk in the breasts; nor had there been the least appearance of the lochia all that day, as I was informed by herself, and those about her. The pulse was pretty full and very much hurried. I immediately took full eight ounces of blood, from the arm, which was still fizy. The regimen was desired to be continued, and as to medicines the following draught;

IV. R. Mixturæ oleosæ cum gummi uncias duas;
Fiat haustus quartâ quâque horâ sumendus.

On the 28th I found her much easier; she had slept; the purging was abated; and the pulse was not so much hurried, though even now it beat an hundred times in a minute. But the lochia were returned, in pretty good quantity, and of a red colour.—The same aliments and medicines were continued.

On the 29th the pulse was at eighty; the lochia were not quite so red; but there were now some signs of milk in the breasts; the bowels were very easy, and there was no purging, so that I desired the same plan to be pursued.

On the 2d of May, I saw her again. Her pulse now was very full and quick, and she complained of being costive, but her appetite was recovered. I advised her to be kept open by an aperient electuary, and to be bled again if the pain returned. From this time she gradually recovered health, and is now well.

On

On the 27th of April, 1768, about eight in the morning, I delivered a young healthy woman of a lively child. She had a very natural and speedy labour. The common regimen and the haustus oleosus cum gummi were prescribed:

On the 28th I found her pulse large, and above the natural standard; which, by enquiry, appeared to me to have been occasioned by the caudle's being made too strong. The lochia were sufficiently copious and of a good colour. The draught and common regimen were continued.

On the 29th I saw her about eleven in the forenoon; and found her pulse better, and the lochia going on in the natural way; but there was no appearance yet of any milk in the breasts. The regimen and draught were continued.

Soon after I was gone, without my directions, she had her bed made, though not taken out of it, as I was informed, but shifted from side to side, 'till it was put to rights. At two o'clock she had a copious stool; at three she had a cold shivering, attended with great uneasiness over all her body, and soon afterwards two very loose stools. At eight that evening, being sent for, I found her pulse very full and quick, but the rigours were gone, and she felt herself not so uneasy. Her face appeared flush'd; respirations were pretty quick; the tongue was a little white, and she was thirsty. There was no milk in the breasts, and the lochia had scarcely any red colour. She informed me that she observed them to stop, soon after she was moved in the bed. They were very little in quantity. But a diaphoresis being now breaking forth, I advised only the regimen and draught to be continued.

On the 30th, at ten in the morning, I found she had sweat a little in the night. The pulse was not quite so full, but was pretty quick, viz. at ninety. There was now scarce any appearance at all of the lochia; nor was there any milk in the breasts. She complained of a
pain.

pain in the left side of the hypogastric region, which was increased by coughing, moving in the bed, or making any pressure on the left foot; and it sometimes extended to the region of the sacrum; but I did not find the uterus above the pubis. Her face was flush'd, the whites of her eyes were a little inflamed, the countenance seemed somewhat hurried, and there was an oppression about the breast. The tongue was white, the thirst was considerable, and, since the preceding night there had been three more loose stools.

Eight ounces of blood were now taken from the arm. The oily draught was continued, and, in case the purging increased, I desired that her Abdomen should be strictly encompassed with a napkin, and that she should drink freely of chicken water.

In the evening I visited her again, and found the pulse at an hundred; nevertheless she was remarkably better; for the countenance was more calm and not so much flushed; respiration was more free; the lochia were actually increased; a considerable part of three cloths being wet and tinged of a reddish colour. There had been one stool; the pain was not so troublesome; and she had drank freely of the chicken water. The room being large, and the weather cool, I found little occasion for giving any injunctions concerning the change of air. But the surface of her body I desired to be kept always well covered.

On the first of May the pulse was at eighty, the lochia were paler; the breasts were now beginning to fill with milk; there had been no stools in the night; she had slept well, and in other respects was much better. The same regimen and medicines were continued to the third, with only this difference, that the liquids were given mostly cold. Her breasts were now become less; but the lochia were more copious, and of a good red colour. Her appetite was returning; but, as there had been no stool since the thirtieth ult. an aperient was given; and there being a little cough, the oily draught was directed to be taken once in eight hours. Before the 20th day after delivery she was perfectly well.

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In this case, had I bled on the evening of the 29th, it perhaps would have been as well, if not better; but the diaphoresis coming on, I was willing to see what nature could do. Next day the symptoms (as appeared to me) indicated more clearly a lochial fever. Bleeding, however, and the soft sedative method being used, the event proved as above described.

On Tuesday the 5th of July, 1768, I was desired to see a poor woman, aged thirty-five, who had been delivered on the preceding Wednesday. The accounts given me by herself and women present, were, that a hand of the child came down at seven in the morning, and at noon the midwife effected the delivery, though with the greatest difficulty, having often desired assistance in the operation. The patient had felt great pain and soreness, as is usual after such deliveries. There was a large discharge of blood during the operation, and some blackish clots were discharged afterwards; but the next day the lochia lessened. On Friday she eat some chicken. On Saturday the lochia changed pale, and some signs of milk appeared in the breasts; for they swelled a little: but that evening she was seized with a violent pain in the left side of her thorax, attended with a short cough. She had been feverish ever since delivery; but now, by her own account, she became more so; upon which a male practitioner of midwifery was sent for, and visited her on Sunday and Monday; but the fever, pain, and cough continued till the Tuesday, when I first saw her.

She now breathed with much pain and difficulty, not seeming able to inflate the left lobe of her lungs above half. There was a hollow-ness about the eyes, appearing of a dusky shade, a quick look, and a little pinching in of the nose. She sweat profusely, and told me, that her skin had been moist ever since labour. She had had no stool since delivery, nor had she been bled. The tongue was dry, and there was great thirst. She had an undulating pulse, rather fuller than could have been expected at this time, but it beat an hundred and

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thirty times in a minute. There was no milk in the breasts, and the lochia had no red colour, but were entirely limpid, and appeared a little frothy on the cloths.

About twelve ounces of blood were immediately taken from the arm, after which the pulse was reduced to an hundred and fifteen. I prescribed the following medicines;

VI. R Salis cathartici amari drachmas sex,
Aquæ alexiteriæ simplicis uncias duas &
femis,
Spiritus lavendulæ compositi drachmam
dimidiam,
Misce, fiat haustus statim sumendus.

VII. R Decocti communis pro clysteribus uncias
duodecim,
Olei olivarum uncias tres,
Misce, fiat enema sesquihorâ post haustus operatio-
nem injiciendum.
Vesperi applicetur vesicatorium affecto lateri.

VIII. R Mixturæ oleosæ cum gummi uncias
octo,
Capiat cochlearia quatuor quartâ quâque horâ.

I directed that chicken water should be drank freely, as soon as the alvus became open, but that neither this water, nor any other liquor she took, should be more than blood warm, nay rather colder; and, if she desired to have any other aliment before I could see her the next day, that it should consist only of panada, or water gruel.

On Wednesday about eight in the morning her husband came, and informed me, that she was not worse, though there had been no stool obtained by either draught or glyster. I therefore ordered the following mixture;

IX. R Salis cathartici amari fescunciam,
 Aquæ menthæ piperitidis simplicis uncias
 octo,
 Spiritus lavendulæ compositi drachmam
 dimidiam,

Misce, et capiat cochlearia tria omni horâ, donec
 alvus semel, vel bis responderit.

And if this did not operate in three hours, to inject again an emollient glyster.

About five in the afternoon I saw her, when three stools had been obtained by two doses of the mixture. Her countenance looked now a little lively; the tongue was not so dry; the thirst was not so great, and she felt her bowels much relieved; the pulse was at an hundred; the pain in the side was not so acute as before, and she could inflate her lungs with more freedom; she had still a little cough, though not so troublesome; and there was a kind of moisture upon the skin.

The blood taken away the day before was very fizy: I took away ten ounces more by a large orifice, which she bore very well. This blood was also very fizy. I desired her to continue the use of the chicken water, the panada, and the oily mixture. I likewise ordered her linen to be changed; and that nothing, but what was very clean, should remain about her. And, as the room was very small, the weather also hot, I advised not only the door to be kept always open, but a window too when occasion required.

OF THE SUPPRESSION OF THE LOCHIA.

On Thursday I found that she had had refreshing slumbers in the night, and this morning twice slept two hours at a time; there had been two stools; the blister discharged freely; she breathed still better, but was not free from pain, and the pulse was at an hundred and ten. The tongue was not so dry, nor was the thirst so very great. She had perspired moderately.

About twelve ounces of blood (which was still very fizy) were taken from the arm; she bore this bleeding better than the former, and sat up with more strength during the operation. After bleeding, the pulse was about an hundred, and a little fuller and more steady. The nurse told me, that the cloths were stained of a more reddish colour with the lochia; but, being all washed, I could not be certain of this. The oily mixture was continued.

On Friday the pulse was at an hundred; the lochia had begun to stain the cloths;—one copious stool;—the pain better, but not gone;—and the cough still a little troublesome. The mixture was continued, and one scruple of sal nitri dissolved in half a pint of barley water was ordered to be taken every four hours.

On Saturday the symptoms were as follows: the pulse very full, and at an hundred;—the cough and pain a little troublesome;—she expectorated freely, and breathed more easily;—she was a little thirsty;—her tongue was somewhat dry towards the root;—but her strength was better; and she had a desire for aliments;—there was a copious sediment in the urine of a good branny colour, and the cloths were stained of a reddish colour with the lochia. A few miliary eruptions appeared about the neck.

Ten ounces more of blood were taken from the arm, and the medicines repeated.

On Sunday the pulse was at ninety: the lochia coloured the linen more red; she had but very little pain in her side; but spit up matter mixed with blood. The same medicines were continued till Tuesday.

On

On that day I found her pulse at ninety : there was still some uterine discharge, but it was changed to a white colour ; she could breathe very easy ; had very little cough, and spit up matter mixed with some blood.

The urine deposited a very thick sediment ; the countenance looked fresh, and lively ; she slept well in the night ; had very little thirst, and her appetite was good. The medicines were continued, and a saline cathartic ordered to be taken next morning, after the operation of which, animal food was allowed, as her appetite required.

On Friday the fifteenth I found her dressed and sitting up ; her countenance had a very healthy appearance ; the pulse was come near to the natural standard ; her appetite was good ; she was not thirsty, and what she expectorated was not bloody, nor mixed with so much matter.

After this time the appearance of matter, in what she expectorated, went gradually off, as also the fever, and at this time, she is in perfect health, August 22, 1768.

As the above case was a pleurisy in the beginning ; and afterwards a pleuro-peripneumony, it may by some be thought foreign to the present subject. I have inserted it, because I thought the means used in its cure serve to prove, that venesection may be used with as much freedom in childbed, as at any other time, when necessity requires, and is attended with effects equally good. For, though when I began this cure, I was much afraid, that the inflammation had got the start of me so far, as to terminate in a formation of matter, yet, by taking away about forty-four ounces of blood, and using the other means above-mentioned, the imposthumation was rendered so inconsiderable, as not to prevent a speedy and perfect recovery.

Moreover, though the quantity of the blood was so much diminished, yet the lochia returned.

C H A P. VIII.

OF THE MILIARY FEVER.

WOMEN are sometimes seized with a fever, in the month of childbed, accompanied with an eruption of many small pustules on the skin, about the size of millet seeds, from the resemblance of which, the disorder is called a miliary fever.

There is a disease like this, which befalls women at other times, and men likewise, which appears somewhat different in its nature, as well as symptoms. But here we shall speak only of the former.

Causés.

§. II. Many causes have been assigned for this fever; but I think, the most common are the following; First, There are seasons (though, as it seems to me, neither stated nor regular) which are more productive of it than others; yet, as far as I have seen, it is no ways infectious to those who attend. Secondly, A pre-disposition in the constitution, for some women have it during several lyings-in, which does not always continue, for they are often free from it through succeeding ones. Thirdly, Stimuli applied to the system, such as a violent labour, too hot a regimen, aliments taken very copiously in a day or two after delivery, &c. Fourthly, Exposing the body imprudently to cold air. Fifthly, A sudden or premature recession of milk from the breasts; as also a suppression of the lochia; but I must observe nevertheless, that I have known women seized with this fever after their constitutions have seemed much weakened by a profusion of the lochia, and though milk still remained in the breasts. Nay, in some of these cases, after the fever was gone, and the pustules scaled off, I have known the milk return spontaneously,
and

and pretty copiously to the breasts. Finally, any sudden surprize, or violent agitation of the mind, as anger, fear, &c. will also cause this fever; some instances of which I have seen, where the event was fatal, although all possible means were used for the relief of the patient.

§. III. The diagnostics are generally as follows. The patient is Diagnostics. seized with a cold shivering (sometimes more than once) succeeded by a profuse sweat, smelling somewhat acid, and remarkably fœtid, especially at first; the pulse is pretty full; very quick, and sometimes tremulous; the head is light, and often hurried; there is always an oppression on the breast; a depression of the spirits; frequent sighings, and disturbed sleeps; sometimes a pain in one hip, or in some part of the abdomen, resembling a cholic; the tongue is generally moist, yet the thirst is great; she is inwardly hot, yet feels frequent horrors or chills, especially if she rises in the bed, or uncovers her breasts or arms. In process of time she feels an uneasiness, or general sensation of a pricking in the skin, immediately after which, there is an eruption of very small pustules, first, about the pit of the stomach, breast, neck, arms, hands, and between the fingers, and then more generally, though seldom over all the body.

The pustules are most commonly pellucid, or horny coloured, and feel hard to the touch. It is not unusual for them to come suddenly out, and a great part of them to go as suddenly in again, especially if the patient imprudently gets out of bed, or by any means checks the perspiration or sweat. As they appear, the fever, and most of the symptoms are alleviated; there is a copious sweat, and commonly the urine deposits a large sediment: but when they disappear, the fever, and symptoms, particularly the oppression of the breast, and the depression of the spirits recur again; and thus the case fluctuates sometimes for weeks without observing (as far as I have been

able to remark) any regular periods; and yet the patient apparently mends; the countenance looks more lively, and there is a new acquisition of strength after every remission of the symptoms, till at last the recovery becomes perfect. The pustules go off very slowly, and as they take their final leave, the skin itches, they peel off and not uncommonly carry some little scales of the epidermis with them.

Prognostics.

§. IV. When in a few days, or a week after the attack, the pustules come freely out, and remain on the skin; when upon the eruption, the head, breast, and spirits are relieved; the sleep refreshing; the pulse becoming more soft, and not so very quick, a favourable event is portended: and when the urine deposits a copious sediment of a white or branny colour, a crisis is now begun, not only relieving the patient from this disorder, but very commonly from every other consequent on delivery. Nevertheless it is not to be expected, that the recovery will always prove speedy, as may be understood from what has been said in §. III.

But when the patient finds no relief by the eruption*; when the pustules do not remain steadily out; when the fever, and symptoms already mentioned, recur with violence; the urine pale; and but little moisture on the skin, or that which is, not being general, the case will not only be difficult, but the event also doubtful. If it has been long before the pustules appeared; and on their eruption there be little or no abatement of the fever and symptoms; the head being hurried; the breast and spirits oppressed; the pulse low and quick; no equal or kindly moisture on the skin; no milk in the breasts; little or no

* An eruption similar to this may be produced by sweating, which has made some deny the existence of this fever; but a miliary eruption differs essentially from one produced by sweating, in as much as it is critical and diminishes or carries off the symptoms of the fever, whereas the other does not.

lochia, and the urine still pale, or of a dirty cyder colour; the patient is in the most imminent danger.

§. V. In the cure of this fever, as a very particular regard is to Cure, be had to the patient's regimen, we shall for that purpose recommend what has been said in Chap. 7, §. IV.

Venesection is sometimes necessary, as for instance, when the fever manifests itself on the third or fourth day after delivery, (before which time it seldom doth, but most commonly a few days later) and when the pulse is pretty full and quick, the oppression about the breasts great, especially if the lochia are obstructed, and the lungs seem over-charged; or if there be a pain in the side, then bleed, and repeat it as occasion requires.

In some cases I have thought that blisters have done good, and in others not.

As to internal medicines; those that are either acid or very heating, have no place here. Such as are soft and gently sudorific are used; and, I think, with propriety; for, so far as I can judge from my own experience, they have always had the best effect. With respect to their forms I shall only adduce a few, by way of example.

I R Pulveris contrayervæ compositi scrupulum
unum,
Spermatis ceti soluti drachmam dimidiam,
Aquæ alexiteriæ simplicis fescunciam,
—— ——— spirituosæ,
Syrupi croci singulorum drachmas duas;
Misce, fiat haustus sexta quaque hora sumendus.

OF THE MILIARY FEVER.

Vel,

II R Succi limonum unciam dimidiam,
 Salis absinthii quantum fatis ad plenam fa-
 turationem,
 Spermatis ceti soluti drachmam dimidiam,
 Pulveris contrayervæ compositi scrupulum
 unum,
 ——— croci grana sex,
 Spiritus volat. aromat. guttas viginti,
 Aquæ feniculi unciam unam,
 ——— alexiteriæ spirituosæ,
 Syrupi simplicis singulorum drachmas duas ;
 Misce, fiat haustus quarta quaque hora sumendus.

Vel,

III. R Succi limonum unciam dimidiam,
 Salis absinthii quantum sufficit,
 Ad plenam saturationem,
 Pulveris croci grana octo ;
 Mixturæ oleosæ cum gummi unciam
 unam,
 Aquæ nucis moschatæ,
 Syrupi croci singulorum drachmas duas,
 Misce, fiat haustus ut supra sumendus.

If the eruption comes freely out ; especially when succeeded by an alleviation of the other symptoms, the above medicines or similar ones may be taken for a few days.

But if it neither appears kindly, nor keeps properly out, the pulse changing smaller, and the head growing hurried; or if there is much uneasiness in the abdomen, as some times happens from indurated
 fæces,

fæces, &c. discontinue, for a while, the sudorifics, inject an emolient glyster; and, if the patient is costive, repeat it till the alvine tube is sufficiently relieved.

This, however, must be done with caution, least the bowels be irritated, and a purging brought on, which may prove fatal.

When the intestinal tube has been relieved, though in this cautious manner, it is sometimes necessary to give such an opiate directly as that in Chap. II. and then the patient may continue in the use of one of the preceding draughts, or in that of those following:

IV. R Radicis contrayervæ contusæ,
Semi drachmam, coque in
Aquæ puræ quantitate sufficiente ad fescunciam,
Colaturæ adde,
Spiritus minderri semi unciam,
Spermatis ceti soluti scrupulum unum,
Tincturæ croci drachmam dimidiam,
Syrupi simplicis drachmas duas;
Misce, fiat haustus sexta vel quarta quaque hora sumendus.

Vel,

V. R Decocti supra prescripti unciam unam,
Mixturæ oleosæ cum gummi semi unciam,
Calcis antimonii scrupulum unum,
Vini crocei drachmam semis,
Aquæ nucis moschatæ,
Syrupi simplicis,
Singulorum drachmas duas;
Misce, fiat haustus sexta quaque hora sumendus.

§. VI. As a farther explanation of this affair, take the following case :

On the second of November, 1768, I was called to Mrs. D—, a small sized woman, whose catamenia, when not pregnant, returned every fifth week ; and continued three days, the first very red, the second not so high coloured, and the third quite pale. In the first month of pregnancy she generally was costive, and troubled with sickness at stomach, sometimes vomiting yellow bitter matter. But towards the full reckoning she had usually frequent small and griping stools.

She was now in the 35th year of her age, and in her fourth pregnancy. This birth proved lingering, and very laborious at last ; occasioned, as I imagine, from not only the smallness of the mother's pelvis, but from a compleat knot formed by the funis round one ankle of the infant.

The child was a lively boy, of a common size, weighing six pounds nine ounces and an half, averdupois weight. He was born at five minutes past eleven in the morning. Not the least appearance of blood before his birth. The secundines came away in the ordinary way, about fifteen minutes afterwards, and weighed fifteen ounces three quarters. The placenta was of the usual size and colour ; and the vessels were large and beautifully ramified. Between the birth of the child, and expulsion of the secundines, the lochia were ziv . ziii . vi . gr. iv . troy weight. When the delivery was finished, the patient was directed to use white wine caudle, as her appetite required, to drink barley water when thirsty, and to take four spoonfuls of the mixtura oleosa cum gummi every six hours. The room was to be kept properly warm, and every thing capable of irritation avoided as much as possible.

At the end of the first hour, reckoning from the expulsion of the secundines, the quantity of the lochia was zii . zv . vi . gr. viii .—The
pulse

The pulse now beat ninety times in a minute. At the end of the second hour the lochia $\text{ziii. } \text{ss. } \text{ss. gr. iv.}$ —The after pains moderate.—In the third, lochia $\text{zi. } \text{ziv. } \text{ss.}$ —In the fourth, $\text{zi. } \text{ss. iv. } \text{ss. gr. xvi.}$ —Colour very red.—In the fifth, $\text{zvi. } \text{ss. gr. x.}$ —In the sixth, zv. —In the seventh, $\text{ziii. } \text{ss.}$ —Pulse at eighty;—Pains a little forcing;—the fundus uteri remaining about midway betwixt navel and pubis as big as a man's fist,—a kindly moisture over all the body;—near a pint of urine discharged, a little coloured by the lochia as it came away.—At the end of the ninth hour lochia $\text{ziii. } \text{ss.}$ —At the twelfth, $\text{zii. } \text{ssvii. } \text{ss. gr. x.}$ a clot included.—At the fifteenth, $\text{zii. } \text{zi.}$ a large clot included.—At the eighteenth, $\text{ziv. } \text{ss.}$ —At the twenty-first, $\text{zii. } \text{ss. gr. iv.}$ —And at the twenty-fourth, zii.

Lochia first day and night.

1st Six hours, $\text{zxiv. } \text{ssvii. } \text{ss. gr. x.}$

2d Ditto, $\text{ziii. } \text{ssvi. } \text{— gr. x.}$

3d Ditto, $\text{zii. } \text{ssv. } \text{ss. —}$

4th Ditto, $\text{— ziv. } \text{ss. gr. iv.}$

Total $\text{zxxi. } \text{ssvii. } \text{ss. gr. iv.}$

The patient last night rested well;—head and breasts very easy;—pulse at sixty;—the skin moderately moist;—no thirst;—urine of the natural colour;—some pain about the loins, with a little forcing or bearing down of the rectum;—appetite being keen, some chicken was allowed, with an injunction to eat but very sparingly.

The second day, at the end of the third hour, lochia zii. —Colour not so red.—At that of the sixth, zii. gr. x. —The breasts having now milk, the child was allowed to suck, during which time the patient was seized with a cold chill, which held about fifteen minutes;—the caudle and oily mixture were directed to be used as before.—At that of the ninth hour, lochia $\text{ziii. } \text{ss.}$ —Breasts filling with milk;—head still easy;—a diaphoresis over all the body;—pulse at
eighty;

eighty;—no thirst;—urine of the natural colour.—At the end of the twelfth hour, lochia ziii .—Fifteenth, z ii . 9 ii .—The patient now awaked with a cold shivering, which continued near half an hour. The only reason she could give for this was, that the cloth had slid from her, while she slept, and that the fire had been let out by the neglect of the nurse. However, some warm caudle being taken, a sweat broke forth over all the body, legs and feet last. After this she dozed a little, but was very thirsty.—At the end of the nineteenth, lochia ziii ,—and at the twenty-fourth, ziv . 9 ii . gr. x.—They now began to be a little fœtid, and to appear of a pale red.—Pulse at an hundred and twenty-seven.—Head giddy;—breasts swelled with milk, and pretty hard;—face a little flushed;—tongue dry;—much thirst;—skin very moist;—darting and shifting pains in the head, breasts, abdomen, and legs.—Feet burned, as she expressed it;—the abdomen very tender when touched;—several rigors, especially if she moved, or was in the least uncovered.—Urine a little high coloured, depositing a copious branny sediment.—One stool.

Third day, at the end of the third hour, lochia zii .—The following draught given.

VI. R Aquæ menthæ piperitidis simplicis z ii .

Salis Cathartici amari z ss .

Spirit. lavend. composit. z ss . M.

At the end of the sixth hour, lochia zii . 9 ii . gr. v.—More fœtid;—colour very pale;—urine high coloured, depositing a wooly sediment;—three stools;—head easier;—a fœtid profuse sweat over all the body; yet frequent rigors, and the pulse much hurried;—some sickness at stomach, but no great oppression there;—a little fulness in the abdomen, but not so many darting pains;—the fundus uteri remained yet above the pubis nearly as large as before, and very tender

der when touched. In the left side of the hypogastric region there was also a tenderness, which was increased on drawing up the left leg, and there was a great foreness, as she expressed it over all the body, but no eruption as yet to be seen.—The farinaceous aliments were continued, and the following draught directed :

VII. R Succi limonum ℥ss
 Salis absinthii ℥ss
 Effervescentiâ finitâ, adde
 Mixturæ oleosæ cum gummi ℥iss,
 Misce, fiat haustus sextâ quâque horâ sumendus.

At the end of the ninth hour, lochia ℥iii. ʒii. gr. v.—scarcely red;—face not so flush'd;—tongue moist, and of the natural colour;—head a little hurried;—respiration quick;—pulse at one hundred and fifteen, softer and smaller than at the third hour;—no rigors;—skin not so hot as in the morning;—a copious fœtid sweat over the whole body;—the abdomen neither so full nor so tender;—two more stools, since which she has been much easier;—a pain still about the left psoas-muscle on raising the left leg.—At the twelfth hour, lochia ʒii. ʒii;—three more stools.—At the sixteenth, lochia ℥iii;—two more stools. At the twentieth, lochia ʒii;—this morning some refreshing sleep;—a little head ach;—breasts very full of milk and hard;—pulse one hundred and five;—a diaphoresis over all the body;—skin not very hot;—tongue a little dry at the root;—some thirst;—the abdomen still tender, especially near the pubis, but the uterus was now contracted so much as not to be felt above the pelvis;—no rigors since midnight. At the twenty-fourth, lochia ʒiss;—pulse at one hundred.

The fourth day, at the end of the third hour, lochia ℥iss.—At the seventh, ʒii.—Ninth ʒii. ʒi;—still fœtid, and now tinged a little more of a reddish colour; some head ach; breasts filled with milk;

—pulse at one hundred, rather hard and more full;—respiration not so short;—stomach easy;—diaphoresis as before;—the abdomen still tender;—very little thirst;—urine pale;—the medicines continued.—At the thirteenth, lochia z ii .—At the seventeenth, z iv ,—and at the twentieth, z ii ;—these last three quantities appeared of a pale red, and were gradually more foetid.—At the twenty-fourth, lochia z i ;—scarce any reddish cast, but still very foetid.

The patient slept well last night;—pulse now at ninety;—and neither so full nor hard;—breasts replete with milk, and pretty hard, though all this time the child had sucked;—tongue a little white and dry about the root;—diaphoresis the same;—some thirst;—a little inflation of the abdomen; the hypogastric region still tender, when touched;—not so much pain about the psoas on moving the leg;—a forenefs in the left groin;—some inclination for aliment;—a pain about the sacrum.—The following powder ordered:

VII. \mathcal{R} Tartari emetici grana duo,
 Pulv. e chel. c. c. drachmam
 Unam et dimidiam,
 Misce bene, et divide in chartas sex
 quarum capiat unam sextâ quâque horâ.

The fifth day, at the end of the fifth hour, lochia z i . z i ;—at this time the patient was seized with a pain in her back, coldness in her legs and feet, succeeded by a sickness at stomach, and retching of bitter matter;—her head was hurried;—tongue white, and a little dry;—urine pale.—At the ninth hour, lochia z ii , z i . gr. x. now a little reddish coloured;—head a little hurried;—pulse at one hundred and ten;—skin very hot;—some miliary pustules on the inside of the arms;—tongue white, and somewhat dry, but clean;—pretty much thirst;—frequent eructations;—a little sick at stomach;

a fulness and tenderness of the abdomen ;—a very foetid sweat over the whole body ;—urine pale.—At the thirteenth hour, lochia ζ ii. gr. x. —more pale.—At the seventeenth, ζ ii. gr. viii.—At the twentieth, ζ i. Θ i. gr. x.—and at the twenty-fourth, ζ i. Θ i. gr. xv.

Last night the patient rested very badly ;—sometimes sweat profusely ;—always very hot and thirsty ;—urine made at seven in the morning was of a pale colour, and deposited a copious mealy sediment of a pinkish cast ;—at eleven the pulse at ninety-two ;—skin agreeably moist ;—thirst not so great ;—many wandering darting pains about the body ;—miliary pustules small, white, and confined still to the insides of the arms ;—a little tightness about the breast ;—one large stool ;—the abdomen less tumified, but still tender in the hypogastric region ;—a darting pain about the sacrum.—It appearing that the child was disordered by sucking the milk, the breasts were wholly drawn by the nurse.

The sixth day, at the end of the fifth hour, pulse at one hundred ; tongue white and dry in the middle, especially near the root ;—much thirst ;—lochia ζ iv. gr. iv. ;—urine of a cyder colour, depositing a woolly sediment ;—a blister applied between the shoulders, and draught (II. §. V.) ordered.—At the ninth, the patient troubled with a little cough, and tightness about the breast, yet expectorated pretty freely ;—some pain in the head, and in the wrists and legs ;—tongue moist, and not so white ;—still no depression on the spirits ;—a gentle breathing over the body ;—skin hot ;—pulse at one hundred ;—lochia ζ iii. an acute pain darting from the os sacrum to the right groin ;—breasts not so hard, but still containing milk ;—the aliments used, currant gruel and barley water drank cool ;—urine the same as before ;—miliary pustules more out on the arms, and some also on the neck.—At the thirteenth, lochia ζ i.—At the seventeenth, ζ i. Θ i. gr. x ;—no red cast.—At the twenty-first ζ ii ;—colour the same.—At the twenty-fourth, lochia ζ i ;—the patient slept better last night ;

C c c

but

—but sometimes awaked, hurried by darting pains in the cubits under the arm-pits, a cutting pain, as she expressed it, in the back, and a pricking pain in the feet;—a chilness when any part of the body was uncovered;—a depression now of the spirits;—no great thirst;—tongue a little white but not dry;—she observed that when the uterine discharge was greatest, (for it varied, as may be seen by a review of the case) the pain downwards was always the least;—pulse as before;—a gentle sweat over all the body;—the eruption more out on the hands, arms, and over all the breast;—no fulness nor tenderness of the abdomen;—urine of a pale saffron colour, depositing a woolly sediment;—one large stool;—no appetite;—a little sick at stomach;—the medicines prescribed the day before repeated.

The seventh day, at the end of the fifth hour, lochia zi;—at the ninth, ðii;—the patient's head a little hurried;—some sweat over all the body;—skin very hot;—pulse at one hundred and five;—a pricking pain in the hands and under the arm-pits;—the eruption still more out;—urine rather pale, of a dirty colour, with a woolly sediment; two stools;—some sickness at stomach;—milk in the breasts;—blister rose well;—the following draught prescribed:

IX. R. Tartari emetici granum unum,
 Aquæ bullientis uncias duas;
 Misce, fiat haustus statim sumendus.

This draught operated several times by vomit, bringing off a large quantity of green and yellow bitter matter;—two stools were also obtained by it.—At the thirteenth hour, no lochia.—At the seventeenth the same.—At the twenty-first the same.—At the twenty-fourth, zi;—no fœtor, nor any reddish cast;—this morning the patient rested very well;—head more easy, and intellects calm;—pulse at ninety-six;—stomach and rest of the abdominal viscera very easy;—an itching in the skin,

skin, but no pricking pain, except in the hands and feet ;—no pustules however in the latter ;—tongue a little white, but moist and clean ;—not much thirst ;—some inclination for aliment ;—milk in the breasts ;—a diaphoresis over all the body ;—urine of a whey colour, with a woolly sediment ;—the farinaceous aliments, powder and mixture continued.

The eighth day, at the end of the sixth hour, lochia ζiv .—At the ninth, ζii ;—reddish coloured ;—the patient now much easier every where ;—the pulse at eighty ;—some milk in the breasts ;—gentle breathing on the skin ;—urine of a cyder colour ;—the miliary pustules white, hard, and considerably enlarged ;—breasts often drawn by the nurse ;—spirits better.—At the end of the thirteenth, lochia ζi . Θi ;—colour the same.—At the seventeenth, ζiii .—At the twenty-first, ζii ; a profuse sweat over all the body, feeling cold to the patient ;—pulse at one hundred and ten.—At the twenty-fourth, lochia ζi . Θi . gr. x ;—colour still a little red ;—pulse at one hundred, rather more full and steady ;—head clear and easy ;—other symptoms much the same as before.

The ninth day, at the end of the eighth hour, lochia ζi . Θi ;—red coloured ;—fætid ;—the pulse at eighty ;—the eruption more out, some even on the legs and feet ;—other symptoms much the same as before ;—a blister applied to the inside of each cubit, and the antimonial powder (VII.) given, increasing the dose to half a grain.—At the thirteenth, the lochia Θi . gr. x ;—a little red.—At the seventeenth, ζi .—At the twentieth, ζi . Θi ;—less red.—At the twenty-fourth, lochia ζi ;—less fætid ;—colour still paler.—The patient slept more last night, than for several nights past ;—pulse at eighty ;—pustules very numerous over all the arms, breast, neck, and upper part of the feet ;—milk in the breasts of a good colour and consistence ;—tongue white, but not very dry ;—some thirst ;—no appetite ;—each blister had discharged an ounce of lymph ;—urine of a saffron colour ;

—the diaphoresis very little but general ;—the same aliments and medicines continued.

The tenth day, at the end of the fourth hour, lochia none ;—at the ninth, Di ;—shooting pains in the head, and axillæ ;—the eruption extending over the back ;—skin but very little moist ;—sensation of burning in the feet ;—pulse at ninety ;—tongue a little white, but clean ;—thirst moderate ;—spirits a little depressed ;—a tightness about the breast ;—urine very pale ;—no stool ;—a kitchen glyster ordered.—At the twenty-fourth, lochia zi ;—no red colour ;—the patient's rest last night was disturbed by the piles, a disorder which also happened to her in the preceding lying-in ;—every other symptom much the same as before.

The eleventh day, at the end of the ninth hour, lochia zi ;—only white lymph, not foetid ;—pulse full, and at sixty-eight :—patient easier, and every symptom favourable.—At the seventeenth, lochia Di .—At the twenty-fourth Dii ;—only lymph without any faecor ;—the patient rested better last night than since the beginning of her illness ;—no uneasiness any where, except in the right ankle, and about the anus, where the hæmorrhoidal veins were swelled externally ;—pulse strong, and at eighty-eight ;—an agreeable diaphoresis over all the body ;—urine a little of a cyder colour ;—more inclination for aliment ;—some weak broth allowed, but no meat ;—one stool ;—the alexipharmic powder continued.

The twelfth day, at the end of the ninth hour, lochia Di . gr. x ;—pulse full, strong, and at sixty-eight ;—a diaphoresis over all the body ;—urine pale ;—At the seventeenth, lochia Di .—At the twenty-fourth, zi ;—the patient rested pretty well last night, but awaked with a coldness in her legs ;—this morning she had a pain in the small of her back, extending from thence at times round under the short ribs to the sternum ;—an oppression about the epigastric region ;—very little moisture on the skin ;—eruption still much out ;—pulse at eighty-six ;—piles gone ;—

gone;—tongue a little white, but very clean;—some thirst;—urine pale, a little cloudy, and more lively coloured.

The thirteenth day, at the end of the ninth hour, no lochia;—pulse at ninety, pretty full, and rather hard;—a pretty copious foetid sweat over all the body except the feet, which burned;—both legs and feet sometimes cold;—milk still in the breasts;—no pain in the back;—urine pale, much in quantity, and a little cloudy;—another large stool.—At the eighteenth, lochia $\text{\textcircled{D}}$ i.—At the twenty-fourth, $\text{\textcircled{D}}$ i.—the patient slept pretty well last night;—pulse at ninety;—more milk in the breasts;—some depresseure about the præcordia;—urine very pale, without either cloud or sediment;—powder repeated.

The fourteenth day, at the end of the ninth hour, no lochia;—copious sweat over the whole body, which felt very cold to the patient;—very little thirst;—pulse at ninety and pretty full;—urine more pale than in the morning;—a blister applied to each leg, and the saline mixture with volatiles ordered.—At the twentieth, lochia $\text{\textcircled{Z}}$ i.—yellowish coloured.—At the twenty-fourth, $\text{\textcircled{Z}}$ i. $\text{\textcircled{D}}$ i;—not red, but foetid;—the patient slept well last night;—a kindly moisture on the body, without feeling cold to the patient;—some thirst;—pulse at eighty six;—some desire of aliment;—the first miliary pustules almost gone, but many small ones appearing on the hands, and breasts, and also some on the face;—urine more of a natural colour, and cloudy:

The fifteenth day, at the end of the tenth hour, lochia $\text{\textcircled{D}}$ i;—pulse at seventy-four;—at the end of the twenty-fourth, no lochia;—pulse at eighty-six;—breasts more filled with milk;—child allowed to suck;—skin moderately moist;—the miliary pustules beginning to scale off;—blisters had rose well;—urine depositing a little sediment;—one large stool;—an appetite for aliment;—the following mixture ordered:

X. \mathcal{R}

X. R. Aquæ alexiteriæ simplicis uncias sex,
 ——— spirituosæ unciam unam,
 Spiritus nitri dulcis drachmam unam,
 ——— volatilis aromatici,
 Confectionis cardiacæ ana sesqui-drachmam,
 Syrupi simplicis drachmas sex ;
 Misce, fiat mixtura cujus capiat cochlearia tria
 quarta quaque hora.

Sixteenth day, at the end of the twenty-fourth hour, no lochia, pulse at seventy-six;—miliary eruption considerably gone;—patient sat up two hours yesterday;—countenance lively;—strength recovering;—an increase of milk in the breasts;—one stool;—urine pale and cloudy;—mixture continued.

Seventeenth day, pulse at eighty;—in every other respect better;—sat up six hours.—On the eighteenth, every symptom much the same.—On the nineteenth, pulse at seventy-six;—the urine now deposited a copious sediment, of a light grey colour.

In the fourth week, an uterine efflux came on, and continued about three days, resembling the catamenia. At the end of the month, the patient being rather too venturous in exposing herself to the air, a small degree of fever came on, attended with an eruption of some reddish pimples upon the skin; but, having repaired to bed again, a sweat broke out over all the body;—the eruption went off;—the urine deposited a copious sediment, and she soon recovered.

Here was a miliary fever, as far as I could discover, independent of any error committed, in either the labour or lying-inth*; nor owing to the milk, or lochia; these having continued in their natural courses, as may be seen by the case.

* Chicken indeed had better not have been eaten so early; but whether this could bring on such a fever or not the reader may judge.

The quantity of the lochia each day was as follows ;

1st day	℥xxi.	℥vii.	℥i.	gr. iv.
2	℥ii.	℥v.	℥i.	—
3	℥ii.	℥i.	℥ii.	—
4	℥i.	℥vi.	℥ii.	gr. x.
5	℥i.	℥iii.	—	gr. xiii.
6	℥i.	℥iv.	℥i.	gr. xiv.
7	—	℥ii.	℥ii.	—
8	℥i.	℥v.	℥ii.	gr. x.
9	—	℥v.	—	gr. x.
10	—	℥i.	℥i.	—
11	—	℥ii.	—	—
12	—	℥i.	℥ii.	gr. x.
13	—	—	℥ii.	—
14	—	℥ii.	℥i.	—
15	—	—	℥i.	—

Total ℥xxxv. ℥iii. — gr. xi.

§. VII. Authors have taken notice of a compound miliary fever ; *Petechia*, that is, when miliary pustules are intersperfed with papillæ, commonly called a rash ; or with petechial eruptions, the small-pox, or measles.

This species seems to me to be rather symptomatic than idiopathic. However, as I have not seen such a combination, with regard to the small-pox and measles during the month of child-bed, I will not take upon me to treat of it.

Such indeed joined with, or rather subsequent on a petechial eruption, I have seen ; and therefore I shall insert the following case as a specimen.

A

A patient of a very slender habit of body, troubled with a little fever, especially at night, during the latter part of pregnancy, was safely delivered on the 1st of July, 1763.

The weather was extremely hot, and in the time of labour there happened one of the most violent tempests of lightning and thunder that I ever knew: but care was taken all the time to prevent her being over-heated.

After delivery she had no fever, the lochia went on well, the breasts filled at the usual time, and she felt herself better than ever she had done in any preceding lying-in. As she was costive however, the following draught was taken on the fifth day :

XI. R. Pulveris jalapii grana septem,
 ——— rhei grana quinque,
 Salis nitri grana quatuor,
 Aquæ alexiteriæ simplicis fescunciam,
 ——— spirituosæ,
 Syrupi rosarum solutivi,
 Singulorum drachmas duas ;
 Misce, fiat haustus mane sumendus.

Upon taking this aperient, an incredible number of stools ensued, making her at last very faint ; but she recovered by the next day, without any medical help.

I must observe, that the weather had been very variable ever since the tempest mentioned, there being hot gleams of sunshine, then thunder and lightning, succeeded again by showers ; and these by very hot weather.

On the ninth day her apartment was washed with warm water ; and towards the evening she dressed and sat up in the same room till near eleven at night. Of this I was not informed till fourteen days afterwards.

Whilst

Whilst she sat up, she observed that some spots like flea-bites came out on her face and arms; her head was giddy, and she had successions of flushings and faint sweats.

On the tenth I found her as follows:

The skin dry and very hot, the pulse about one hundred and ten, but pretty steady and not very full; the tongue was white but not dry, nor was there much thirst. She had a pain between the shoulders, with a sensation of an opening, as if the back bone (as she express'd it) had been cut down the middle; and there was a depresseure on the spirits; very little milk in the breasts; and on the face and cubits many specks of a livid or purplish colour, not only appeared, but some of them had risen above the skin. The following plan was enjoined; the air in the room to be warmed a little with a fire, as that day happened to be remarkably cold; but to be kept as free from dust, or any disagreeable smell, as possible.

Her aliment to be barley water, chicken water, sage or balm tea, water gruel, &c. all to be given rather cool; and as to medicines the following mixture.

XII. R Succi limonum unciam unam,
 Salis absinthii quantum satis,
 Ad plenam saturationem,
 Aquæ alexiteriæ simplicis uncias duas,
 ——— spirituosæ,
 Syrupi simplicis singulorum semiunciam;
 Misce, fiat mixtura cujus capiat dimidiam
 sexta quaque hora.

On the eleventh the fever was not so high; no petechial eruption on any part, except the face and cubits: these parts, however, were hot and dry, but all the rest of the body was moist. The petechiæ

D d d

were

were now much broader, and some of them more risen than before. There was no sickness at the stomach, but there were several loose stools, which not making the patient faint, I forbid any means being used to suppress them. Her sleep was disturbed and she often awoke with a pain between the shoulders. The tongue was still white, but not dry; nor was the thirst great. The saline mixture was repeated.

On the twelfth every symptom was nearly the same, except the petechiæ, several of which were now become vibices as broad as half a crown, especially on the cubits, on the back of the hands, and some on the palms. The same mixture was repeated. On the thirteenth every thing nearly in the same state, only the bowels were not so lax. The mixture continued.

On the fourteenth the following powder was added to the mixture;

XIII. R. Pulveris contrayervæ compositi scrupulum unum,
 Salis nitri grana quindecim;
 Misce, fiat pulvis sexta quaque hora sumendus
 cum cochlearibus quatuor mixturæ salinæ,

On the fifteenth the vibices looked paler; there was a diaphoresis over all the body except the face and cubits; and, in every other respect, the patient appeared rather better than worse; the medicines were therefore repeated; and as there had not been a stool for two days, the following draught was given:

XIV. R. Salis Cathartici amari drachmas duas,
 Aquæ alexiteriæ simplicis uncias duas,
 Spiritus lavendulæ compositi drachmam dimidiam,
 Misce, fiat haustus statim sumendus.

On

On the sixteenth the face and arms were beginning to be moist. The pulse was about ninety; the patient was indeed very low spirited and thought herself dying; but, considering every circumstance, I still persisted in telling both herself and her friends, that she would do well. The powder and mixture were repeated. I must own, however, one great neglect; namely, I do not find in my notes any observations about the urine before this time, when it appeared very turbid, and dark or brownish coloured.

On the seventeenth, the face and arms were moist as well as all the rest of the body. The vibices were lessened; and in several places remained only like freckles, what the patient drank had all this time been given cool, but now I desired white wine whey to be given warm, especially whilst the sweat was pretty copious. The powder and mixture were repeated.

On the eighteenth the urine was high coloured when made, soon became turbid, and then threw down a dark coloured sediment. The tongue rather cleaner and very moist. The same medicines continued.

On the nineteenth every circumstance nearly the same, except a few ulcers which now appeared on the under lip.

On the twentieth the weather was very hot. In the morning the patient seemed much the same as the day before, but in the evening I found her very faint. The sweat was copious and extremely foetid; the ulcerations on the lip were larger and very foul; the tongue, however, was pretty clean and moist, and her skin had more of a healthy cast, the petechiæ being nearly gone; but in her countenance she appeared greatly fatigued; there had been some loose stools, and the urine had a dusky greenish colour; but deposited a copious sediment. I desired that she might immediately have clean linen, which was complied with. The room was sprinkled with vinegar, and the bed quilt with lavender water; the windows and doors were set open till the room

was replenished with fresh air; and when it became hot and disagreeable I desired the same should be repeated, and that the patient should sit up in bed as often as she could to breath fresh air, taking care at the same time to keep her body well covered; some red wine with cold water was allowed for drink; and as to medicines the following infusion;

XV. R Pulveris Corticis Peruviani unciam
unam,
Aquæ alexiteriæ simplicis uncias octo,
—— ——— spirituosæ uncias duas;
Infunde sine calore per sex horas,
dein per chartam coletur;
Capiat colaturæ ægra uncias duas quar-
ta quaque hora.

In the morning of the twenty-first the ulcers on the lip were very foul and more spread; and the urine had the greenish cast; but, in all other respects, I thought the patient was somewhat better. The infusion was repeated.

In the evening I found the fever higher; a blister was applied between the shoulders, and a dose of the saline mixture ordered to be given every four hours during the febrile paroxysm.

On the twenty-second there was a moderate diaphoresis over all the body; the pulse was now at eighty, and, in all other respects, the patient was better, so that the Peruvian infusion was given again.

On the twenty-third the petechiæ were nearly gone; but some miliary pustules appeared on the flexion of the left arm, some between the fingers, and a few on the neck. The weather being still extremely hot, I desired the patient to sit up often in bed, with her body well covered, while she breathed fresh air from the windows which were kept open almost all day; and, as she felt herself
inwardly

inwardly very hot, I allowed her to drink half a pint of cold spring water, which she did, and found refreshment by it. The Peruvian infusion was continued.

On the twenty-fourth the miliary pustules were more numerous and some remarkably large, especially on the inside of the left arm. The pulse was at eighty; there was a kindly sweat over all the body, and the urine deposited a copious sediment, which was not so dark as before; there was a stool or two every day; the infusion was continued.

On the twenty-fifth the countenance looked lively; the ulcers on the lip were beginning to heal; the tongue moist and much cleaner; the pulse at eighty; the diaphoresis went on; the urine appeared now of a citron colour, and was not so turbid. The miliary pustules, however, were greatly enlarged, especially one on the flexion of the left arm, which was become a chrystaline full as big as an ordinary sized grape. There were many on the breast as large as common peas; and under the arm-pits several more, some of which were burst and begun to dry. The patient now having a desire for acids, I allowed her to eat currants and drink oxycrate; and sometimes for a change red wine and water. As to medicines the cortex was now given in both the tincture and decoction.

On the twenty-sixth I found she had rested badly the night before; the skin was hot and not so moist as before; the pulse was at ninety; the spirits were depressed; many of the pustules had disappeared; there was a chrysaline indeed on the neck as large as a grape, which, being opened, discharged a limpid fluid. A pain in the calf of the legs, but, no inflammation nor any hardness to be observed; the urine darker coloured than the day before, a little cloudy but no good hypostasis. I recommended the same regimen with only this difference; that if a sweat came on, the patient should drink whey made warm and pretty strong; and, instead of the cortex in decoction, &c. the infusion to be taken as before.

On the twenty-seventh, she had rested badly the night before; a sensation of a coldness in the feet, succeeded by heat, but there was little or no sweat; a large quantity of pale urine had been made, the pulse was small and still at ninety; the tongue was clean; no thirst, nor was there much desire for aliment. I desired her to dress and sit up now, as her strength would bear it. In the evening I found her better, she had been a little faint at first, but afterwards was refreshed with the cool air admitted into the room, by opening the windows. She had now some desire for aliment. The urine was high coloured and cloudy; and the lochia returned. The Peruvian infusion repeated.

On the twenty-eighth, I found she had rested very well the night before, and perspired freely over all the body; the lochia went on; the urine was cloudy, and more of a healthy colour than before; some desire for solid aliment; the infusion continued.

On the twenty-ninth, she had felt her feet very hot the night before; she had short sleeps, often awaking in starts; the urine at first high coloured, and afterwards somewhat like cyder, but no hypostasis; a little thirsty; faint sweats over all the body except the feet; the tongue clean, and the lip nearly healed; the former pustules were scaled off, but on the breast and pit of the stomach there was a plentiful crop of new ones, about the size of pins heads, white and remarkably transparent.

During the preceding week she had a natural stool or two every day; the pulse was now at seventy-six; I desired her to keep in bed all day, and continue the infusion with a scruple of the pulvis contrayervæ compositus added to each dose.

On the thirtieth, she had rested well the night before, and there was a kindly diaphoresis over the feet as well as all the rest of the body; the lochia were gone; the pulse was at sixty; the body was laxative; a considerable quantity of urine had been made in the night, which appeared

appeared of a whey colour, and deposited a little quantity of a woolly sediment.

On the thirty-first I was informed, that in the preceding evening, she dressed and went down stairs, after which she became faint, and felt a sensation of an extreme uneasiness over all the body. In the night her head had been a little hurried, but a sweat breaking forth, she grew easy. She observed that the miliary pustules struck in whilst she was out of bed ; but at this time they were come out again. The urine was of a whey colour, but pretty large in quantity, especially in the night ; but now the pulse was at sixty, and there was a general diaphoresis. I desired her to keep in bed, and take the same medicines as before.

In the evening, she thinking herself dying, I was sent for ; there was then a febrile paroxysm ; the pulse was at eighty ; the diaphoresis however continued ; one discharge of the urine had been high coloured, but what was excreted now was very pale. There was a miliary eruption, not only on the pit of the stomach, but over most of the thorax ; I desired her to be kept equally covered, to drink barley water and white wine whey, to continue in the use of the medicines every eight hours, and intermediately to take the following mixture :

XVI. R Confectionis cardiacæ drachmas duas,
Pulveris bezoardici drachmam unam,
Aquæ feniculi uncias quinque,
——alexiteriæ spirituosæ uncias duas,
Syrupi simplicis unciam unam ;
Misce, fiat mixtura cujus capiat cochlearia tria
in languoribus.

August the first, she had rested well the night before ; the pulse was at sixty-five ; the diaphoresis general ; some petechiæ like freckles still

to be seen on the skin; and a few miliary pustules appeared on the arms, as well as on the trunk; the urine whey coloured, or rather of a bilious cast, depositing a woolly sediment; one stool.

The patient now intimated that she had a sickness at the stomach, attended with some inclination to vomit; upon which I ordered the following emetic;

XVII. R. Vini ipecacoanhæ unciam dimidiam,
 Aquæ puræ unciam unam,
 Misce, fiat haustus statim sumendus.

In the evening I found that this draught had operated, and that the stomach was easy; the pulse was at seventy five, but the diaphoresis went on, attended with an itching in the skin; I advised the patient to drink barley water, with hartshorn shavings boiled in it; and, between whiles, some white wine whey. As to medicines, the cordial only, as last prescribed

On the second, she had rested pretty well the night before; the stomach easy; the diaphoresis gentle and general; but the skin very hot, and the pulse at eighty; the urine very pale, and its quantity copious. One stool.

XVIII. R. Pulveris contrayervæ compositi drach-
 mas duas,
 Sulphuris aurati antimonii grana duo;
 Misce bene, et divide in chartas sex, quarum
 capiat unam quarta quaque hora.

On the third, she had rested very well the night before; her countenance more lively; the miliary pustules nearly gone; the diaphoresis moderate; the appetite recovered; for before I came, she had eat some
 chicken

chicken, and said she could have eat more, had she not been afraid of committing an error: the pulse was now at eighty-five, probably owing to this repast. The urine still pretty copious, but more of a citron colour, and cloudy. One stool. Powder repeated.

On the fourth, the miliary pustules were entirely gone, but the petechiæ were more out on the arms. The pulse was at eighty. The spirits were depressed; the catamenia had appeared; the urine was pretty copious, and some of it very pale: there was also more thirst and less appetite, yet the patient did not lose flesh, but seemed gradually to mend in her habit of body. The same plan of cure continued.

On the fifth, she had rested well the night before, and dosed more to-day than ever since the beginning of the fever. The pulse at seventy-six. The diaphoresis general; thirst not so great; the appetite better; the urine higher coloured and cloudy. The petechiæ however were fresh on the wrists; the linen was changed again; and the powder was repeated.

On the sixth, refreshing sleeps the night before; a copious and general sweat; the petechiæ almost gone; the skin appearing of a fresh colour; the catamenia quite gone; the urine a little higher coloured and still cloudy. The powder repeated.

On the seventh, refreshing sleeps the night before, attended with a very copious sweat; the pulse at seventy; no hypostasis in the urine; the patient however eat to-day some lamb and french-beans with a very good appetite, and found herself easy afterwards.

On the eighth, neither so much sleep nor sweat; pulse at seventy: urine citron coloured; every day a natural stool; the powder yet continued.

On the ninth, rested very well the night before; sweat freely; the petechiæ intirely gone; the pulse at seventy; urine of a lively citron colour, depositing a little sediment not quite so woolly as it had been

all the week before. The countenance very fresh, and the appetite recovered; so that the patient was now allowed to get out of bed and eat some toast and ale, which she greatly desired.

Whether the fomes of the above fever consisted most of the pecthial or of the miliary kind, I will not take upon me to determine; but this I presume is clear, that symptoms peculiar to each of these species of fevers, very evidently appeared.

I thought the blister did good; how it did so, I imagine now, was from the copious discharge which it occasioned, probably of part of the morbid serum, which afterwards enlarged some of the miliary pustules to such an enormous size. But whether an application of more would have shortened the disease or not, I cannot say.

This I will own, that my view from the beginning was, First, to bring on a diaphoresis, and then to keep it up; Secondly, to guard against putrefaction; and Thirdly, to support the patient by proper aliments and medicines, whilst the fever (if I may be allowed the expression) ran its natural course.

To attain these ends, I thought it best to have the surface of the patient's body always properly covered; to have her linen often shifted; and to have the air in the room frequently changed; so that what she inspired into the lungs might be fresh, and as free as possible from being tainted with the steams of her own body, or with any other impurity.

These means, together with the use of medicines, especially the cortex, seemed to me to be very efficacious in stopping the progress of the putrefaction. But I suspected, that when the cortex was given, in tincture and decoction, the febrile symptoms were rather heightened, and therefore I did not repeat it in those forms. The acids also seemed rather hurtful than beneficial, for which reason I am still more confirmed in the opinion of those who forbid them in miliary fevers.

However,

However, as I have given a detail of the symptoms, as well as of the means used, the reader is at liberty to judge for himself.

§ VIII. With regard to swellings of the legs the substance of what I have seen in practice is as follows : In 1752 I was desired to see a woman, aged about thirty, and in the third week of child-bed. Upon examination I found that the lochia had been pretty copious, and the patient, having ventured too early on business, had been seized with a fever, and afterwards with a swelling, which at first was extremely painful, but now very large, extending up the thighs, the skin appearing maculated with purplish streaks especially on the legs. Swellings of the legs, &c.

Her countenance had a very bad aspect, and her pulse was quick, small, and irregular.

We had directly the assistance of an old Physician, who advised Scarifications to be made upon the legs; a discutient foment to be applied; and a cardiac mixture consisting of *confectio Cardiaca* and *Tinctura Corticis peruviani volatilis*, &c. to be given.

A cupping scarificator was accordingly used, some serous blackish blood was discharged; but respiration grew more quick, the pulse became more hurried, and in less than an hour the patient died.

In 1761, I was called to a patient who had lain in about three weeks. The circumstances of this case were as follows:

Her countenance appeared very bad; the pulse was small, quick, and fluttering; respiration was very quick, attended with frequent sighings. The lower limbs were much swelled; the skin, especially of the legs appearing maculated with purplish streaks, and capable of being easily pitted.

By the account of herself and nurse the lochia had been pretty copious at first. She had been feverish above ten days. She had felt much pain in her legs, and one had swelled more than the other. They had been imbrocated with opodeldock, and enveloped in flannel by order of the

midwife; but it did not appear to me that any direct means of cure had been used.

I forewarned her husband and her friends of her approaching death. A mixture with *Confectio Cardiaca* and *Spiritus valerianæ Volatilis* was immediately given; but in less than two hours the event happened as was feared.

Since these two cases, having been called more timely to several other patients in this way, I have met with better success, tho' the symptoms began with much similarity.

I must here observe that women who have been weak and sickly during pregnancy; and who have had the lochia not only pretty copiously but rather longer than usual, especially if accompanied with some partial signs of a miliary fever, have appeared to me the most subject to those swellings. The method of cure which I have used is as follows: The patient has been kept in bed. Perspiration has been encouraged by the use of warm liquids, as white wine whey, or chicken water, &c. gentle sudorific medicines, like those above directed, have been given. The body has been opened every third or fourth day. Flannel cloaths wrung out of the common discutient fots were applied as warm as she could bear them, about half an hour, or more, and repeated every night and morning. During these applications care has been taken to keep her properly covered as well as dry; and in the intermediate hours, the legs being well dried, were enveloped with new flannel, which made them sweat very freely.

Though the swellings have been so remarkably painful at first that the patient could not bear the weight of the bed cloaths, yet after the use of the fots, they have gradually subsided and the pain lessened, so that by the end of the month she has been perfectly relieved.

Towards the latter end of the cure the miliary eruption has generally appeared about the neck and breast, and this being gone, or nearly so,

so, as commonly happens very soon, aloetic purges have seemed to me to have had very good effects.

In 1760 a middle aged woman, of a pretty full habit of body, was seized with a fever, about the eighth day after a very natural delivery, and subsequent discharge of lochia. The milk soon left the breasts; a few miliary pustules came out about the neck, but soon disappeared. The legs became painful, especially about the calf and upper part of the tendo-achillis. In a day or two the left one became swelled, and a circumscribed redness appeared on the skin. Cataplasms made of bread, milk, and oil, were applied twice a day. The whole leg grew much swelled, but the redness, pain, and hardness being confined principally to the gastrocnemius, extending near its whole length, I concluded a suppuration would ensue, and therefore persisted in the use of the cataplasm.

The patient had faintings and oppressions on her spirits, and her pulse was small and quick, so that it remained very doubtful for several days, whether the strength of her constitution would be able or not to complete maturation. I recommended the use of the following draught:

XIX. R. Pulveris corticis peruviani unciam unam,
 Aquæ puræ uncias octo,
 — nucis moschatæ uncias duas,
 Sacchari albi drachmas sex;
 Infunde sine calore per horas duodecim, dein co-
 letur per chartam.

R. Colaturæ uncias duas;
 Fiat haustus quarta quaque hora sumendus.

A mixture also, with confectio cardiaca, was given occasionally.

The imposthumation began on the gastrocnemius and gemillus; some also on the solæus; and at last extended from the ham to the upper part of the tendo-achillis. As

As soon as nature had pointed, the integuments being of a due tenuity, and the fluctuation easily felt, an incision was made from the ham to the solæus, by which aperture the discharge became so free as to prevent any mischiefs happening to either the tendo-achillis, or to the tendons of the femi-nervosus, femi membranosus, and biceps muscles, of which I was much afraid.

A suppuration ensued also on the solæus of the right leg, which being opened they were both dressed with balsamum terebinthinæ mixed with unguentum sambucinum, and an emollient poultice of bread, milk, and oil over all.

The appetite now began to mend, the strength recovered, the wounds digested, incarnated and kindly cicatrized, so that in less than six weeks the cure was compleated. The patient is in good health at this time (July 21, 1768.) there is some confinement in extending the left leg, though she limps but very little in walking.

C H A P. IX.

OF THE PAINFUL URGENCY TO URINE.

BESIDES the urinary complaint occurring in the state of gestation, as described in Part II. Chap. III. a frequent and painful urgency to urine happens also to some women at other times; especially about the final cessation of the menstrua, or a few years afterwards.

The most probable causes of this complaint, as far as I can discover, are the following, viz. a plethora of the uterine vessels; any thing capable of exciting irritation, inflammation, and ulceration in the Substance of the bladder itself, whether an accumulation of blood, or translocation of peccant humour, &c. pus, carnosus floughs, fabulous concretions, &c. washed down into its cavity, consequent on some disease in the kidneys; also some peculiar degree of irritability in the nervous system, more especially perhaps in that part of it which belongs to the uterus and urinary passages.

If this disease has been described by any author, it is more than I am acquainted with; therefore, in order to cast what light I can upon the subject, I shall lay before the reader the following cases.

Mrs. Pearce, at Great-Ealing, whilst washing linen, was, in September 1758, seiz'd with a pain in the small of her back, extending from thence to the navel, and from that down to the pubis, succeeded by a forcing about the uterus and bladder, occasioning a frequent urgency to urine. These complaints continued several days with such violence, that she could neither stand nor walk erect, then remitted a few days, never going entirely off, and returned as bad as ever.

She

She now applied to a Physician and Man-Midwife, and was under his care above half a year, but the disorder still increasing, and an anasarca coming on, he recommended her to St. George's-Hospital, where in about seven weeks she was relieved from the dropſy ; but the other complaints continued rather worſe than better, with the addition of ſome new ones, viz. a pain about the region of the ſtomach attended with retchings ; a weight and pain about the pelvis and groins ; a continual coſtivenefs and frequent miſtions, with great pain, and in ſmall quantities, not exceeding a ſpoonful at a time, which in the day was very clear, and in the night turbid. She next became a patient to a country practitioner near where ſhe lived, and afterwards to an old phyſician, for near two months without finding any relief.

On the tenth of February, 1760, (now a year and five months from the firſt attack) ſhe applied to me, ſhe was in the forty-third year of her age, and of a full habit of body ; ſtill ſomewhat anafarcous. The catamenia had ceaſed about five years. She could neither ſtand nor walk upright, but ſeemed as uneaſy as one in labour. In ſhort ſhe had not only all the ſymptoms above-deſcribed, but the miſtions were ſo frequent that ſhe was obliged to ſit upon cloaths to receive the urine, as it came away. The inſide of the labia was inflamed but there appeared no ulcerations, nor any purulent diſcharge, yet there was ſo ſœtid a ſmell, as to make me ſuſpect the caſe to be cancerous. There was an unuſual hardneſs and fulneſs about the perinæum and poſterior part of the vagina, but upon examination I found the uterus remarkably ſmall, conſidering her time of life, and higher in the pelvis, than could have been expected, conſidering the violent forcings with which ſhe had been afflicted. Tho' the poſterior part of the vagina ſeemed very full, as above mentioned, even protruding thro' the orifice with a wrinkled ſurface, yet, by a gentle preſſure, it eaſily went up. In ſhort I could not diſcover that the ſeat of the diſeaſe was either in this, the uterus, or rectum, tho' the latter was alſo carefully examined. I therefore paſſed the catheter, and found ſome reſiſtance to its point, juſt within the
bladder

bladder on the right side of the orifice, as if by some carnosus substance. I searched with tenderness and caution all around, but could discover neither stone nor any other unusual symptom, excepting that the bladder seemed much contracted; and upon withdrawing the catheter a few drops of blood followed. She observed to me that the symptoms were always increased by high seasoned food, or strong fermented liquors. She was a little feverish and thirsty.

I began the cure by venesection, gentle laxatives, nitrous and oily medicines, and by the application of emollient unguents to the inside of the pudendum. I next injected the bladder twice a-day with about four ounces of the following mixture:

I. R. Pulveris gummi arabici unciam dimidiam,
Solve in aquæ puræ drachmas sex,
cui gradatim adde,
Balsami copaivæ drachmas duas,
Olei amygdalarum dulcium uncias duas,
Aquæ puræ uncias sex, misce.

During the use of this she took small quantities of the mercurius dulcis, and gentle purges at proper intervals; some anodynes also when the complaints were urgent. She was kept in an horizontal position. She gradually became easier about the bladder, retained the urine in greater quantities, and discharged it intirely without pain. After this I placed a pessary of the common form in the vagina; but although it was as large as could be well introduced, yet there were still such forcings, that it did not stay above twenty hours; upon which I contrived one of such a form as is represented in Plate IX. This remained, and all the complaints went off in less than a month from the time I began the cure, so that she returned to her ordinary business.

On the 26th of May she was so well, that I ventured to discontinue the use of the pessary; but in a few hours the vagina fell lower, and

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the pain and urgency to urine returned, and continued so troublesome for two days, that recourse was again had to the pessary ; upon which she became very easy, and remained so, (the pessary being taken out and clean'd, and replaced about once a month) till the 8th of April, 1762, when it was intirely laid aside, and an issue made in the leg. She has continued ever since in perfect health, having not the least complaint about either uterus or bladder. The issue, by my request, is still kept open.

N. B. Neither by the patient's account, nor by my own observation, could I discover the least gravel or gritty sediment during the whole course of the disease.

Mrs. B. (a woman of a healthy habit of body, and chearful disposition of mind) when about thirty three years of age, was seiz'd with a frequent urgency to urine; which complaint being taken for an inflammation of the bladder, she was blooded, and took some cooling medicines ; in fourteen days she was perfectly well. She bore sixteen children, had natural labours, grew corpulent, and, after fifty, had some gouty paroxysms. At times she felt a little pain in her back, and evacuated her urine with some difficulty ; which was taken, by an old practitioner in physic and surgery, to be the gravel : Accordingly, he ordered medicines to cleanse the kidneys, (as he express'd it), but never any gravel or stone appeared, nor was there any thing remarkable in the urine, except now and then a little downy sediment, which she thought was in consequence of the medicines used. In other respects she enjoyed a very good state of health, till the sixty-first year of her age ; when she was seiz'd with a disagreeable pruritus about the labia pudendi and fossa magna, sometimes attended with a heat and smarting, but not any complaint about the bladder.

In this manner she went on to the sixty-third year of her age, when she became troubled with a frequent and dolorous urgency to urine. Upon the commencement of this, the pruritus went off, and
never

never returned. The urinary complaint continued rather increasing, till September, 1767, (the sixty-fifth year of her age) when it grew so very troublesome as to prevent her going abroad: But all this time her health was not much impaired. There was neither any fever, nor decay of appetite. Sometimes she had the gout, but the urinary complaint was always the same. The quantity of urine discharged at once was often not a spoonful; commonly about three; but seldom more than six; and in twenty-four hours, the total scarce ever exceeded a quart, nor was there any stone or gravel to be seen in it.

In October her appetite began to fall off, she observed that her complaint increased immediately upon eating or drinking, and likewise in a sitting posture. When she stood she was tolerably easy, and when lying, more so; excepting that a pain shot sometimes down from the navel to the neck of the bladder. Every miction was preceded by a violent straining, attended with a pricking pain, and succeeded by a smarting sensation, but never any dysuria.

She applied to several physicians of eminence and observed their directions, but the disorder continued with these additional symptoms, viz. great soreness about the urinary passage, which increased more by sitting than by standing; in an horizontal position she was always easiest. When she went to stool, especially after being constive, she felt (as she expresses'd it) a sensation about the neck of the bladder, as if a sore was tearing asunder. When in bed she also felt pain shoot down from the navel to the neck of the bladder; but this symptom never increas'd upon sitting, standing, or walking. The urine, when new made, was always of the natural colour, but having stood about an hour, a whitish brown mucus subsided, and some adhered to the vessel. A small bladder (as she expresses'd it) came away with the urine; which being opened and examined by the last physician who attended, its contents by him were judged to be of a calculous nature. This is the account which she gave me of her case.

OF THE PAINFUL URGENCY TO URINE.

On the 29th of April, 1768, having returned into the country, she came under my care. I found she had all the symptoms above stated, but there was no fever. I passed the catheter in order to discover if there was any stone in the bladder, or any particular foreness in one part of it more than another, but found neither stone, nor any symptom denoting an ulcer; there was indeed a little tenderness at the inner orifice of the urethra, and the sphincter seemed to contract pretty closely about the catheter.

I examined the uterus also, which did not seem enlarged, nor had it any unnatural hardness or tenderness; but there were two membranous fasciæ, which ran (one edge upwards and the other downwards) across the upper part of the vagina, between its anterior and posterior sides, keeping the uterus higher than what is common, at her time of life. But upon pressing against the neck of the bladder and urethra, she felt no unusual uneasiness nor pain. There was not the least discharge from the uterus, nor did there appear any inflammation about the fossa magna and labia pudendi.

I imagined that the neck and sphincter of the bladder might be affected by an accumulation of some kind of humour, so as to occasion this irritation, or frequent urgency to urine, and advised the soft and cooling regimen, together with the use of the mixtura oleosa cum gummi; the bladder was also injected twice a day with the following mixture:

II. R. Pulveris gummi arabici drachmas duas et semis,
 Aquæ rosarum unciam dimidiam,
 Fiat macilago, cui sensim adde
 Olei amygdalarum dulcium drachmas septem,
 Aquæ rosarum uncias duas,
 Syrupi e meconio unciam dimidiam, misce.

On

On the 2d of May, she was sick at stomach, and vomited yellow bile. Seven ounces of blood were taken from the arm, and in the evening the following draught was given :

III. R. Vini Ipecacuanhæ unciam dimidiam,
Aquæ puræ unciam unam ; misce.

By the operation of this gentle emetic, the stomach was relieved. The other medicines were continued, and an aperient electuary used to keep the body sufficiently open. The injection usually staid about an hour, and afforded some relief, but soon required the addition of ten or fifteen drops of the tinctura thebaica. The urine was always of a natural colour, when newly made, without any appearance of mucus or matter in it ; but, having stood about an hour it deposited a larger quantity of a glutinous substance than before, more resembling pus and smelling very offensive even at a considerable distance.

From the symptoms, especially as she had a little pain sometimes about the loins, and from thence round towards the groins, I suspected that this foetid discharge came from the kidneys, and therefore advised the following pills :

IV. R. Terebinthinæ e chio drachmas duas,
Terræ japonicæ drachmam unam ;
Misce, et fiant pilulæ numero triginta et sex,
quarum capiat tres ter in die.

Some warm olive oil being now injected into the bladder by the patient's own desire every day, and these pills continued about a month, the mucous discharge became less, and not so foetid ; but the other complaints remained much the same, except that she thought she found
some

some ease by a discutient foment, which by her own request, was applied to the pudenda.

She never had any fever, but her appetite fell off; she wasted a little, and her flesh became flabby. The weather was now, at times, very hot, which assisted the disease in reducing her strength: For these reasons I advised the use of the cortex peruvianus and balsamum traumaticum, which was continued to the 24th of June, without any material change in the case.

All medicines were omitted from this time to the 9th of July, when, the stomach and bowels being oppressed with bilious humours, the emetic was repeated, and a gentle cathartic given the next day. An anodyne draught was given when the complaints were very urgent, but nothing else till the 21st, when she had an attack of the gout in her feet. Upon this the urine became entirely free from the morbid discharge and foetid smell; and was excreted with more freedom and less frequency and pain. But as the gouty paroxysm went off, all the symptoms recurred, only with this difference, that the sediment of the urine was neither so purulent, so foetid, nor so much in quantity.

After this the extractum cicutæ and a preparation of the cortex peruvianus was given, but the patient did not continue their use a sufficient time for a fair trial of their effects.

On the 25th of August, having some talk with Dr. Hunter, about diseases of this kind, he told me that he had known relief given by the use of bougies, which hint he had had from Dr. Cullins, professor of physiology at Edinburgh.

On the 28th, I used one. The first day she retained it about half an hour; the next day she retained it two hours, and all that evening the urine came away in a larger stream, and with less pain and frequency, than for some time past. The third day it was used about the same length of time, but in the evening a purging coming on, (which she lately had been subject to alternately with costiveness) the urgency increased

increased for that night and most of the next day, which, together with the continuance of the diarrhæa, discouraged the patient from the use of it for near a week. Upon trying it again, I thought the urethra became not only more open, but also less tender; and the patient owned, that she some times retained her urine longer, and that it came away with less pain; yet I could not prevail with her to use the bougie above seven or eight times in the whole. Soon after this she had a sickness at stomach, and vomited yellow bile, on which account the emetic was repeated. An anodyne was given occasionally, when the urinary complaints were very urgent; and, by her own desire, the fatus was again used.

On the 25th of September she felt a pain about the loins, and next day a substance of a glandular appearance came away with the urine, about the size of a bean, which being dried upon paper, was manifestly fabulous. The next day about half a pint of urine was discharged at once, and she was easier about the bladder.

On the 29th she felt a smarter pain (as she express'd it) about the loins, than ever she had done since the beginning of her illness; and on the day following a little more of the gritty substance came away with the urine. Upon this I advised the use of the terebinthinate pills, and mixtura oleosa cum gummi.

On the 3d of October she was troubled with frequent retchings, and pain about the stomach and loins; the urine was clear, and without any morbid smell. The following draught was ordered:

V. R. Olei refinii unciam dimidiam,
Aquæ menthæ piperitidis simplicis
unciam unam et dimidiam,
Misce, fiat haustus mane sumendus.

On the fifth, freely purged by the above draught;—the stools remarkably offensive;—sickness and pain about the stomach still troublesome,
some,

some, as also a pain extending from the loins, under the false ribs, round towards the navel;—urine still clear as before;—an anodyne draught repeated.

On the sixteenth, urinary complaint still the same; the sickness at stomach very troublesome, and vomitings also on moving the body;—very little appetite;—a sudden wasting of the body;—no medicines used.

On the first of November, retchings not quite so troublesome;—stomach bears a little aliment of the liquid kind;—the strength greatly reduced;—much inclination to sleep;—urine clear;—sometimes retained about three hours, and then to the quantity of four ounces discharged with less pain than before.

She having been lately unwilling to take medicines, or to try any other means of cure, an anodyne only had been given once or twice a week.

She now wasted fast, her strength failed, the complaint about the bladder was less troublesome. On the tenth she died*.

On the twelfth Mr. Hunter did me the favour to open the body. The appearances were as follows: The liver less than the usual size;—two stones in the gall bladder, one as large as a walnut, and the other about the bulk of a pea. The ducts of the liver and gall bladder not in the least obstructed;—kidneys smaller than common;—their external surface irregular;—their substance maculated, or of a variegated colour;—some stony concretions in the mamillæ;—but nothing unusual either in the pelvises or ureters.—Bladder of the ordinary size;—its inner coat inflamed, irregular, and ulcerated much in several places, especially on the right side;—on one side of the inner orifice of the urethra there was a small ulcer. The urethra itself appeared red, its vessels being filled with blood.

* This history is inserted verbatim, as wrote before the body was opened.

The uterus, with its broad ligaments, adhered posteriorly to the rectum and parts adjacent. The os tincæ and neck of the uterus were entirely obliterated; and the posterior part of the vagina, adhering to the os uteri, formed a kind of frænum. The uterus contained a kind of bloody mucus in its cavity, but there was nothing remarkable in the substance of the uterus, only, that it was a little flabby.

On the twelfth of December, 1760, I was called to a patient who had born fourteen children, several of whose births had been very laborious, but were effected in the natural way. She was then in the fifty-ninth year of her age, of a corpulent and healthy habit of body, as well as equable and chearful disposition of mind. She had got cold in one lying-in, after which she felt a pain in the small of her back, but never had any complaint about either the uterus or bladder, till a few weeks before the time I was sent for, when she was seized with an instantaneous and frequent urgency to urine, attended with a cutting pain, and a violent straining or forcing down, but very little sense of heat. The quantity of urine discharged at once very often did not exceed a tea spoonful, and never an ounce; nor did the total in twenty-four hours ever exceed what was natural. Upon searching with the catheter, I found no stone in the bladder, nor any unusual tenderness, except at the inner orifice, where the sphincter also seemed to contract more forcibly than what is natural. There had been no pain in the loins, groins, or thighs; no gravel to occasion such an uneasiness; no discharge of mucus, or of matter, either with the urine or any other way.

She had sometimes a pruritus about the fossa magna, but never any tenderness or soreness there. I could not find any thing wrong in regard to the uterus. Yet she often scream'd out like one in labour, and said that she had the same sensation as if the head of a child was coming into the world. These complaints continued both day and night,

so that her sleep was disturbed. Her appetite also fail'd, and she became thirsty. The pulse was quick, full, and hard.

I attempted the cure by venesection, gentle cathartics, emollient clysters, and the use of the mixtura oleosa cum gummi, some tinctura thebaica being occasionally added to procure ease. The bladder was also injected with the mixture, first alone, and afterwards at times with twenty drops of the above tincture added to it. I likewise tried lime water, but this caused so much pain that I soon desisted.

Having continued in the use of the above means to the middle of May, 1761, (during which time, the blood being always fizy, she was bled six times) the complaints were all gone. But, as they went off, a flux of the humour fell upon the inside of one leg, a little above the ankle, where an ulcer soon formed. This sore was very painful at first.

I recommended the use of emollient cataplasms and unguents, in order to promote an easy and free discharge of the humour. I advised her to keep it very clean, and never to apply any thing with a design to dry it up, till it was disposed to do so of itself. This plan was observed to the year 1767, during which time she never had the least complaint about the urethra, uterus, or bladder,

In October 1767, the ulcer healed up spontaneously; about three months afterwards a diarrhæa came on, and continued troublesome near two months: and in the beginning of March, 1768, she had a return of all the complaints about the bladder, not only with greater violence, but with some additional symptoms, viz. an increase of pain upon walking, sitting up, and going to stool; a forcing to evacuate urine immediately upon drinking beer, wine, or any other fermented liquor. But eatables, broth, gruel, or any kind of simple water, tea, &c. hot or cold, never gave any uneasiness.

She observed also, whenever the forcings of urine came on, that a great pain ran down (as she express'd it) from the collar bone
(mostly

(mostly of the right side) to the neck of the bladder, and drew her together, as if by a cord. The pulse was full, pretty hard, and quick; the tongue dry, and she was thirsty. She had but little appetite; her body was sometimes bound, and at others loose.

I attempted the cure again by venesection and the use of the oily mixture, sometimes joined with the salt of wormwood mixture, and, at others with nitre, she being feverish, and the blood very fizy.

Her body was occasionally opened by gentle aperients; emollient glysters were used, sometimes adding about twenty or thirty drops of the tinctura thebaica, which, for some time gave more relief this way, than by the mouth. I also tried a vesicatory upon the loins, but all to no purpose; for the complaints grew rather worse than better.

In July, she applied to an old physician, who declared the case to be cancerous. Having used every means he could think of without success, he declined attending any longer.

In the beginning of August, she had a great sickness at stomach, and frequent retchings; but never any pain about the loins or groins, or any appearance of gravel.

On the twenty-eighth of August, I found her greatly emaciated; the pulse at ninety, full, and rather hard; the tongue white, very dry, and rough; she had a diarrhæa, and was constantly thirsty. I now placed a bougie in the urethra, and desired it to be retained about two hours, if she could bear it, which she did; but the pain not being alleviated thereby, she had not resolution to repeat the trial. And indeed the constitution was now so far exhausted, that a palliative method seemed to be the only resource. I therefore advised her to continue the use of some anodyne pills, which the Doctor had prescribed, and in case they failed, to use those following, viz.

OF THE PAINFUL URGENCY TO URINE.

VI. R. Opii colati scrupulum unum,
Extracti glycyrrhyæ drachmam unam,
Misce, fiant pilulæ numero viginti,
quarum capiat unam semel vel bis in die.

On the twenty-fifth of September she died; I was very desirous of having the body opened, in order to attain a more certain knowledge of this disease, but her relations would not permit it.

CHAP.

C H A P. X.

OF THE DESCENSION, PROTRUSION, AND IN-
VERSION OF THE UTERUS.

BY descension, is here meant, a falling down of the uterus from its natural situation, till the os tinæ bears upon the os vaginæ; by protrusion, a continuance of this descension, till the uterus comes intirely through the os vaginæ, making a tumor without the vulva; and by inversion, a turning of the uterus inside outwards.

The two former of these complaints may arise from the same causes, Causes. as for instance, a general laxity of the fibres; some peculiar or preternatural disposition of the uterine ligaments to lengthen; hard work, especially such as requires much standing; violent strains by falls, lifting heavy weights, coughing, &c. The fluor albus has been assigned for a cause, as also difficult births. Though I cannot deny but they may, yet I must own, that I never met with a case that could be solely imputed to either, especially the former. Of the latter, however, there is much probability, and the more, if such means as directed in Part III. Chap. VI. §. VI. are not timely used.

As to an Inversion, I think it very rarely, if ever, happens, but by an unskilful application of art in time of parturition. Women therefore, it is to be hoped, considering the improved state of midwifery, are now secured from this evil.

About fifteen years ago I was called to a case, where an inversion had almost taken place, a midwife (though of forty years practice) having brought down a considerable part of the uterus, thinking it was something which ought to come away previous to another child, which, she imagined was still behind: Nor could I intirely convince her

her and the rest of the women of the contrary, though I replaced the uterus, and separated part of the placenta, which had been left adhering to it. I must excuse them thus far: The woman had an ascites, which kept up her bulk after the birth of the child, and probably too occasioned a fulness in the pelvis. The case at last however convinced them; for, towards the end of the month, about three gallons of water came away per vesicam in less than two days. This happy event could hardly be attributed to the efficacy of the medicines, which I had prescribed. They consisted indeed of aloes, soap, oil of juniper, and sal diureticus, but mostly in very small doses, on account of the patient's situation. The recovery was perfect, and the woman had children afterwards. But to return;

There are many instances given by authors of eminence, where the uterus has been intirely inverted by the midwife. See Giffard's Cases of Midwifery, Case 176; Chapman P. 123 Case 29; La Motte lib. 5, Chap. 10 and 11; Smellie's Works, Vol 3, Collection 44, Case 3d. &c. &c.

Diagnosics

§ II. A descension is generally attended with a sensation of a bearing down, an uneasiness about the loins, and pelvis, together with a difficulty in discharging the urine. By the touch the os tinæ may be found near the os vaginæ and the point of the finger being passed round the cervix uteri the vagina may be felt encompassing it. To form an idea of this, let the os uteri (Plate II. Fig. 9.) be supposed to have descended to the os vaginæ, P. Besides there is no excrescence or any thing else to be discovered in the passage.

A protrusion is attended with a weight, a forcing and an uneasiness in both loins and pelvis, in a greater degree than in the former case. The urine is commonly obstructed so much, that the patient cannot discharge it herself, till the uterus is replaced: The reason of this is obvious, if we consider the connection of the parts, (See Part I.

Chap.

Chap. V. Plate II. ABD &c.) and suppose the uterus to have come intirely without the labia pudendi. The vagina being now wholly inverted, covers all the uterus, except the fundus and the orifice; and the surface of its inner membrane, having now become the exterior one of the tumor, appears of a pale reddish colour, resembling the membrane, which lines the fossa magna. The os uteri is still downwards, and may be found a little behind the center of the tumor. The bulk of the tumor, if not inflamed, nor preternaturally enlarged, is about the size of the uterus, Plate X. the vagina being added.

Some think it difficult to distinguish a protrusion from a polypus in the uterine passage. Though my own experience will not perhaps enable me to ascertain this point fully, yet I cannot help thinking that they may be distinguished by the following signs, viz.

In case of a polypus's springing from the uterus, a finger or rather catheter may be insinuated the whole length of the vagina, and then moved sideways quite round: If it arises from the vagina, the instrument may also be passed as high, but the root of the polypus will prevent its going quite round. Whereas in a protrusion, the vagina is so much inverted, and pulled down by the uterus, as to leave no passage, but only a circular sulcus about half an inch deep within the fossa magna. Something is to be discovered likewise by passing the catheter into the bladder; for in a protrusion this viscus is displaced, as above observed, but in case of a polypus its position is generally natural, and there is no suppression of urine.

An inversion may be known by its rough or fibrous surface; by its form and size resembling a florence flask; by the connection of its upper end all round to the os vaginæ; such errors having preceded as mentioned §. I. or any incidents capable of producing the same effects.

§. III. A Descension commonly terminates in a protrusion, sub- Prognostics.
jecting the patient to many evils; as for instance, violent pain; an ex-
posure

posure of the inner surface of the vagina to the action of the air, and friction of the thighs and cloaths; inflammation, excoriation, ulceration, carcinomata, sphacelation, &c. But if timely attention and proper assistance are given, all or most of these may be often avoided.

An inversion, though quickly replaced, has been generally found mortal, according to the accounts of the best practitioners.

Cure of a
Descension.

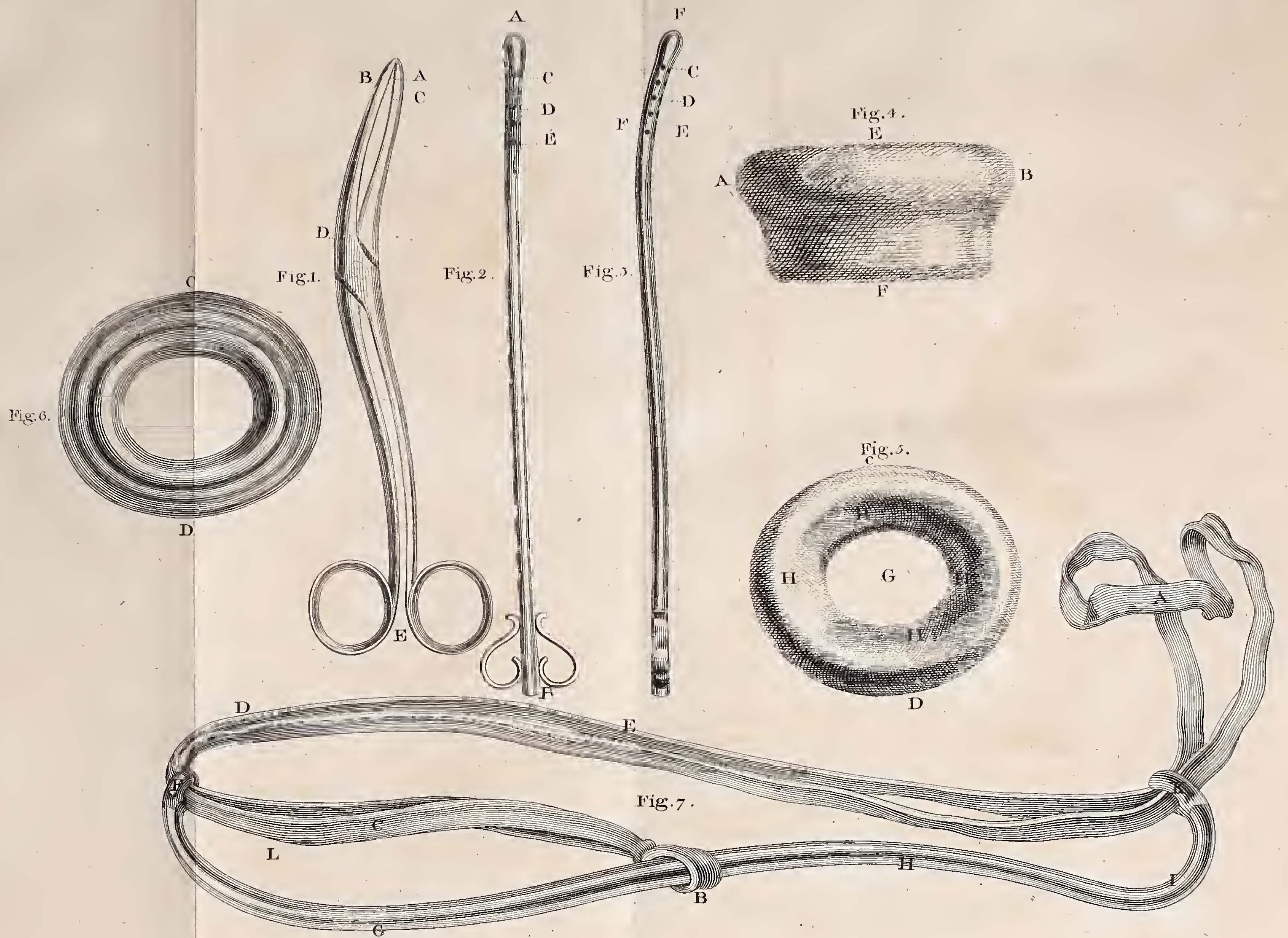
§ IV. The method of cure, in regard to a descension and protrusion, is not only simple (as appears to me) but similar. It consists in the use of a proper pessary, and in keeping the body for a while in an horizontal position, the cortex peruvianus and such other medicines, as will help to corrugate the fibres, may be given, and discutient and restraining fomentations used; but I lay the greatest stress on the use of the pessary. Before I describe the manner of applying this, I shall lay before the reader the following cases.

Case I.

In 1752 I was called to a slender woman, aged nineteen, whose uterus had protruded, and been without the vulva several days before I saw her. Her account of the case was as follows: She had been employed in hard work, which required much standing; soon after lifting a heavy weight, she first felt a pain in her back, and a bearing down, which was succeeded by a mucous discharge from the vagina, and about a week afterwards the swelling appeared.

In this case the wrinkles of the vagina were more conspicuous, and its whole surface appeared more of a darkish red cast, than in any other I have seen. The reduction was also more difficult; yet was compleated by a gradual and cautious pressure of the hand; a small pessary was placed in the vagina, and the patient enjoined to lie in bed, which she did about a month. During this time the pessary was taken out, cleaned, and replaced, as occasion required. She now finding no complaint, was allowed to return to her service. The use of the pessary was continued about a month longer, and then left off; since which
time





time she has remained well, and free from any return of the disorder, though she is married, has had a miscarriage, and works very hard.

In 1767, I was desired to see a gentlewoman, whose case I found Case II. to be a complete protrusion of the uterus. She was extremely well formed, and, till of late, had enjoyed a very good state of health. She had been many years married, but never had been pregnant. The catamenia had ceased at forty, and this was the fifty-fifth year of her age. Her account was as follows: She had been much hurried in the management of household affairs, having often exerted herself beyond her strength. In 1765 she was seiz'd (without any cause known to herself) with an uneasiness and weight about the loins and pelvis, attended with a bearing down. About a month afterwards the uterus came intirely without the labia pudendi, and had remained so ever since, except when she went to bed, or made urine, at which times she replaced it.

When I saw her on this occasion, her health was much impaired. The vagina was excoriated in several places, and round the os uteri were ulcerations, from whence issued a fœtid ichor.

Having anointed the parts well with oil, I reduced the uterus, and placed a wooden pessary (of the same form as that represented in Plate IX. but two sizes less) in the vagina. This supported the uterus properly; but, the patient not finding it easy, a silver one was placed in its stead. The use of this was continued till January 1768, during which time it was taken out, cleaned, and replaced every fourteen days. In the beginning an injection (of the Mel *Ægyptiacum* diluted with water) was used, upon which the discharge lessened and soon went off. Between this and the middle of September, the patient took out the pessary once or twice a week, when going to bed, and replaced it in the morning. On the fifth of October, she told me that she had left it off about three weeks, and yet the uterus had only

H h h

come

come down in part, when she was hurried or exerted herself much. I advised her to continue its use, notwithstanding she found herself so well*.

Case III.

In 1764, a poor woman applied to me for help. The account, which she gave me, was this. Seven years ago she had a very difficult birth (the third child); upon going abroad she had a sensation of a bearing down, which continued to the year 1760, when the uterus came intirely without the labia pudendi, and remained so every day afterwards, occasioning much uneasiness, especially at first, and when she laboured at her usual business, viz. washing linnen, &c. She informed me that she had always put it up at night, and whilst urine was discharged; that she had had the catamenia always very regularly; and had miscarried once in the third month since this disorder began.

I found the tumor much larger than a man's fist. The os uteri appeared a little behind the centre of the inferior part: The vagina was of a pale whitish colour, a few wrinkles appearing, probably from the tumor's being now less, (as she informed me) than it had lately been. It was replaced by a very gentle pressure; but, upon standing, it came directly down. I replaced it again, and then applied a pessary made of cork covered with wax in form of that, Plate IX. and directed her how to remove it occasionally; for circumstances would not allow her to keep in bed, in order to have any other chance of a cure. Some time afterwards I was informed that the pessary had kept the uterus in its place, and she was easy.

From this time I heard no more of her till some time in the summer of 1767, when she told me the pessary was so rough, by the wax being scaled off, that she could not use it. I now supplied her with

* Could I have prevailed on her to have lain in bed about a month, and not to have hurried herself afterwards, I am of opinion the cure would have been perfect before this time.

a wooden one, and in October 1768, was informed she had been very easy till of late, when it occasioned such pain that she could not use it. I had not an opportunity of seeing it, but conjecture this uneasiness proceeded from its surface having become rough.

Now, with respect to tries, many kinds have been invented; some indeed very ingeniously; but here, as in all other instruments of surgery, such as are easiest to the patient, and most simple in their construction, are certainly best. I recommend the one delineated in Plate IX. for this reason only, that I have found it always answer the purpose of keeping the uterus in its place, which is more than I can say of many others I have tried, though reckoned the best. It may be applied as follows:

The patient being placed on her back, the knees apart, and the vagina well anointed with some agreeable unguent, the pessary dipt first in oil, must be insinuated gently through the os vaginæ, one end foremost, with the upper edge E towards the pubis. I must observe Fig. IV. however, that in some cases it is introduced and extracted more easily with either of the sides C D obliquely towards the pubis. When it Fig. V. is passed into the vagina, (which should be effected with some difficulty, but not so much as to lacerate the orifice) it must be turned the edge E upwards, and the ends A B towards the ilia. When placed thus, the os uteri may be felt within the foramen G. and the cervix will Fig. V. rest upon the interior superior part H H H H. The superior exterior Fig. IV. part A B will fill the vacuity or hollow space of the vagina, which surrounds the cervix uteri. Its lower edge F will rest upon the perinæum and os vaginæ, and by the perforation G in the middle, any humidity that issues from the uterus will have liberty of exit through the os vaginæ. By this form and position of the pessary the uterus will not only rest easy upon it, but be kept sufficiently high in the pelvis. The bladder will also be kept in its natural situation. Care however must be taken to keep the pessary clean, and its surface
very

very smooth, else the desired effect cannot be expected, even supposing its form, size, and position, exactly suited to the parts: Let it therefore be removed, and the fordes taken off every two or three weeks at farthest. It is commonly extracted by insinuating the end of a finger through the foramen, and bringing down one end; but if difficulty arises, the end F of the blunt crotchet Fig. 7 may be passed up sideways between its anterior edge and the pubis, and then turned cautiously over the superior part F; which being done, the edge is to be drawn down, the crotchet passed farther into the foramen, and one end made to present at the orifice, upon which it may be brought easily away without the least injury to the patient.

Cure of an
Inversion.

§ V. In case of an inversion, the curative indications, are, First to restore the parts to their natural position; Secondly, to secure the patient as much as can be, from the evils which may arise, in consequence of the accident; And Thirdly, to prevent a falling down of the uterus afterwards.

Some recommend a fomentation previous to the replacement; and this may be proper, when the uterus, having been long inverted, is swelled so much that it cannot be returned without applying such force as would be dangerous: But the labia pudendi and os vaginæ are generally so open at this time, that such difficulty can but very seldom, if ever occur; therefore, the placenta being detached, the reduction should be made as quickly as possible.

In order to obtain this, let the upper part of the tumor be encompassed with both hands, and very gently slid in between the labia. As it passes upwards take a fresh hold below; that is, more towards the fundus uteri (which is still the most dependent part of the tumor) and then move it up as before till the principal part of the body is got to follow. This being done, one hand, the nails being cut extremely short, is to be formed into a cone, and placed against the
fundus.

fundus uteri to guide it through the pelvis, till it is entirely in its natural position above the brim.

If the reduction cannot be effected this way, with such facility as could be wished, the hand may be applied to the lower part of the tumor first, and the fundus uteri conducted through the orifices, and up through the pelvis, as advised before.

In doing this the operator must be extremely cautious and tender, lest he bruise or injure the parts, and after the reduction, the hand may continue a minute or so, keeping the uterus in its natural form and situation, till a contraction begins upon which it must be withdrawn very slowly.

If the bladder is not emptied before the reduction, the catheter must soon be used, for, if it continues distended, or if the patient uses any force or straining in endeavouring to discharge the urine, there will be danger of a descension. To avoid this as well as forward the cure by allowing the patient to remain either in an horizontal position, or with the pelvis a little higher than the thorax, the catheter may be used occasionally for several days. A continual diaphoresis, and moderate discharge of lochia are very essential. Farinacious aliments are to be employed at first, and afterwards those of the animal kind, as the case will admit of. If symptoms of an inflammation, or of a suppression of the lochia ensue, bleeding, and the use of soft refrigerents, as directed in Chap. VII. are necessary: But, in the former of these, caution is required; for, as it appears, in cases of an inversion, there is generally such an infusion of blood, that the pulse will but very seldom admit of bleeding. A fetus however, or instead of it, an emollient cataplasm may be applied to the vulva, and hypogastric region. The alvine tube must be kept very free and easy, that neither forcings nor strainings may be occasioned by costiveness; and even though the cure goes favourably on, the patient ought to continue in bed above a month to give time enough for the
parts

parts to recover themselves. And finally, upon her venturing to walk, should there be any signs of a descension, a pessary must be used as above directed.

What has been called a prolapsus vaginæ is relieved also by the use of the pessary. As I am inclined to think that this disorder depends on causes which are very different from those treated of here, the reader is referred to the first case of the preceding chapter.

A pessary being placed in the vagina has likewise been found beneficial in cases of a prolapsus ani.

C H A P. XI.

OF A CANCER IN THE UTERUS.

WHEN a part, either fleshy or glandular, preternaturally swells and forms a permanent indurated tumour, free from pain, it is called a schirrhus; such a tumour, becoming painful, without any signs of suppuration, is called an occult cancer; and if it ulcerates, discharging a very foetid and acrid ichor, the edges of the sore being hard, unequal, or jagged, appearing of a bluish or purple cast; the surrounding vessels growing also turgid and appearing serpentine, it is deemed a confirmed cancer. Definition.

Scrophulous constitutions are the most liable to these diseases; scorbutic habits seem next so. A venereal taint may add to it, especially when its situation is in the uterus. Upon the final cessation of the catamenia it most commonly comes on, if earlier, the more easily cured. It is sometimes preceded by an inflammation; an accumulation of peccant humours help always to constitute it. Grief may contribute to it, as also very violent agitations of the mind. Causes.

When it seizes the uterus, it is not so easily distinguished as when it attacks an exterior part of the body; besides, the physician is often not consulted, till it is in a state past remedy. Diagnostics.

Let women therefore be on their guard when such symptoms as the following arise: a deviation of the menstrua, not only as to their periods but quantities; a suppression of them, not in consequence of conception; a weight about the loins and pubis, attended with a bearing-down; great heat and pain in the uterus; as also a flux of acrimonious serosities from it; a difficulty in excreting the urine and the fæces, &c.

Upon

Prognostics.

Upon examining by the touch, should the uterus be found but a little enlarged, and its form and situation natural, the case is often curable, though most of the above symptoms appear.

If it is as large as is usual in the third month of pregnancy, very hard, unequal, and painful, discharging a very foetid ichor, it will be more difficult of cure; and when together with the above symptoms, its bulk is so increased, that its fundus may be felt above the pubis, especially if the patient is upwards of forty years of age, it is commonly incurable.

Cure. In the cure a very particular regard must be had to the patient's habit of body, as well as to the present symptoms of the disease.

Venesection and the use of refrigerents come first in order; especially if there be signs of an inflammation. In this case however, the pulse is sometimes rather small and depressed; of which if the physician is not apprized, he may be deceived. The uterus is to be injected first with emollients, and then with detergents. But if it is much enlarged, very hard, and painful, some other remedies must now be used.

I shall not assert, that a confirmed cancer of the uterus can be cured; especially if the patient is above forty. But I must own that I have known cases cured in which the womb has been schirrhous, and extremely painful, accompanied with other symptoms so much like a cancer, as to have been taken for one.

To illustrate this, I shall insert the two following cases, allowing the reader to judge for himself.

Case I.

Mrs. West, (at the Ayle, in Kew Parish) in the time of her sixth pregnancy, had a discharge like the fluor albus, which continued till she was delivered. She had enjoyed a good state of health before that time, without any such complaint; and was now in the twenty-ninth year of her age. Her husband was healthy, and had no complaint; the child proved so likewise, and had not the least

least appearance of humour upon him. After this delivery, the discharge was more troublesome, and continued so during all the time of her seventh pregnancy. The husband had still no complaint, and the child also was very healthy, without any humour about him.

After the birth of this child, the discharge became a little foetid, and so very copious, that her strength was greatly reduced by it. She nevertheless had the catamenia regularly, and there were no ulcers either in the vagina, or about the labia pudendi.

In a few months she had the advice of the late Dr. Smellie, who assured her, that it proceeded only from a weakness of the uterus. Some time after this she sent for an old and experienced surgeon, who brought a man-midwife with him, and after examination, they were both of opinion, that it was a weakness occasioned by her childing fast.

The discharge proving still more troublesome, attended with pain about the small of the back, and region of the pelvis, she applied to a person who professed surgery, and was by him advised to be salivated. He called to his assistance a physician, who likewise assenting, she underwent the operation by unction, at the person's house, in december, 1751. The salivation was kept up very copiously for above seven weeks, and her strength was thereby so much reduced, that it was above six weeks more before she could be removed to her own house, at only the distance of three-quarters of a mile.

In consequence of the salivation the discharge stopped, and she felt a burning pain about the upper part of the sacrum, in the region of the pelvis, and in the womb. She had no difficulty then in discharging urine; but was extremely costive, and continued to be so. In the time of the salivation she had the catamenia very freely, but not the least appearance of them ever afterwards.

She soon became very uneasy, and felt in herself, that the womb was larger than usual, occasioning a sensation of a bearing down on:

the perinæum, by which, together with the violence of the pain, she could neither sit, nor walk upright.

About six weeks after she had returned home, she went to London and had the advice of four physicians, and four surgeons (belonging to one of the Hospitals) one of whom was a Man Midwife. They were all of opinion that the disorder was cancerous. She was ordered the use of nitrous medicines, gentle purges, and an injection which was to be thrown up by the nurse ; but finding that she had no relief, they advised her to return home.

The pain had now increased greatly, and raged with such violence, that she could hardly contain herself ; having never any ease nor sleep, either day or night, except when obtained by opium. About a month being thus elapsed, she applied to two other physicians as eminent in midwifery, as any in London.

They were also of opinion that it was cancerous; however, they took her under cure, in order to give her all the assistance in their power. Glysters, and gentle purgatives were ordered ; an issue was made in each leg, but, not discharging properly, and being extremely painful, they were soon dried up. One of these physicians injected the uterus himself, with the greatest tenderness ; but the pain which she felt after each time, being so extremely violent as to occasion faintings and sometimes convulsions, he was obliged to desist, and she returned home.

She next applied to the late Mr. Ward, who finding that he could do her no good, was so honourable as to tell her so : but rather too hastily added, that she had better go home to be knocked on the head by the surgeon who had salivated her !

After this she had the advice of the physicians and surgeons of Guy's-Hospital ; but her stay there was so very short, that such means as they recommended, could not have time to take effect.

A foreign gentleman, having first obtained a bond from the husband to pay him a hundred pounds if he cured her, took her next under
his

his care; he attended her six weeks, during which time he gave her various medicines, and a large syringe with directions to inject herself; but finding that he gained no advantage of the disease, the case, instead of being alleviated, growing still worse, he resigned the bond, and patient also.

Whilst she passed through this very tragick scene, which was really more horrid, than what is here described; she was seen by several physicians and surgeons of great repute, besides those mentioned;—all inquired into the case;—but none discovered means which gave relief.

November the twenty-second, 1752, I was desired to see her; but when I enquired into the case, I was afraid to meddle with it. However, being much importuned, I undertook to give her what relief I could. Before I did any thing, I waited on one of the physicians under whose care she had been, in order to be well informed of the disorder, and of the means which had been tried. The gentleman told me, with the greatest candour, not only the means which had been used, but that the case was judged to be cancerous. I confess, I was much discouraged; but to make good my promise, I waited on her again, and found her as follows: She was greatly emaciated; her pulse was low and quick; she said she felt a burning pain in the womb, and all round it, sometimes as high as the small of the back; the uterus seemed to be as large as it usually is between the third and fourth month of gestation; and felt hard like a board. There was a little discharge which smelled foetid, and seemed to proceed from the cavity of the uterus. There was also a little preternatural rising, or promi- nency on one side of the cervix uteri, at a little distance from the orifice. The pain was so extreme, that for many months she had no ease, and never slept except in short slumbers, when intirely worn down by the continual agony. I began the cure as follows:

OF A CANCER IN THE UTERUS.

I. R. Salis Nitri purificati grana duodecim,
 Pulveris e Chel. Cancrorum,
 Spermatidis Ceti,
 Singulorum scrupulum unum;
 Misce, fiat pulvis sexta quaque hora sumendus
 in haustulo aquæ hordeatæ.

II. R. Electuarii lenitivi sesqui unciam,
 Pulveris jalapii drachmas duas,
 Syrupi rosarum solutivi,
 quantum sufficit;
 Misce, fiat electuarium, cujus capiat quan-
 titatem nucis moschatæ, nocte ma-
 neque, vel pro re nata.

III. R. Foliorum Malvæ,
 ——— Artemisiæ,
 Singulorum semiunciam,
 Hordeatæ perlatae uncias duas;
 coque in aquæ fontis quantitate
 Sufficiente, ad uncias sex; colaturæ adde
 Adipis anserini purificati uncias tres;
 Misceantur, et fiat injectio pro utero.

One half of this injection was used in the morning, and the other in the evening, the adeps being added at the time of using. Sometimes the syringe was filled with the adeps alone and injected last. It was applied to the cavity of the uterus by a syringe like that delineated in Plate X. and in such a manner as shall be described in the next chapter.

At first I could not pass the canula above a quarter of an inch within the os uteri, but in process of time, the passage through the cervix became more open, so that in a month's time about an inch and

an

an half went readily within the orifice, without giving pain or even uneasiness.

This operation was continued about seven weeks. In fourteen days after it was begun, the catamenia, which she had not seen the least signs of for above eleven months, appeared, and continued red near three days, though very little in quantity. I still persisted in using the injection, and continued it till the next return, which happened about the twenty-eighth day following; then I desisted in order to know what nature would do by herself, and finding now that the catamenia were of a pretty good colour and quantity, that the uterus was lessened, and not quite so hard, nor painful, as when I began, I only injected about a week longer, and then left off.

During the seven weeks of this operation, especially at first, she felt such a violent pain through the whole region of the pelvis, as to make me suspect, the seat of this disorder to be sometimes in one part, and at other times in another. The uterus pressed upon the neck of the bladder, and occasioned at times an uneasiness and difficulty in discharging the urine; and, being examined by way of the rectum, it felt so very bulky and pressed so much against that intestine, as to make me conjecture that this was one reason of her being so extremely constive.

In short the violence of the pain made her complaints so affecting, she often making use of this expression, viz. *that she had a fire within her*, that I dreaded seeing her: But considering that the symptoms were not aggravated by the operation, that it rather alleviated them, that she was impatient for my time of attendance, and that the cavity of the uterus felt more open, I was thereby encouraged to proceed. The soft and cooling medicines were continued; an opiate was given when the pain grew outrageous; the body was kept open by the electuary; and when that failed, other aperitives, and emollient glysters
also

OF A CANCER IN THE UTERUS.

also were given. And moreover some of the uterine injection was sometimes thrown into the rectum.

She now could get out of bed and sit up a little, which was more than she had been able to do for several months before. She sometimes complained of the pain's being violent about the region of the kidneys, which made me try the following enema :

IV. R. Terabinthinæ communis semiunciam,
Spermatis Ceti drachmas duas ;
Solve simul in vitello unius ovi,
deinde adde,
Decocti communis pro clysteri uncias sex : Misce.

As she thought that this gave her some relief, it was continued once or twice a day, till having no effect, thirty or forty drops of the tinctura thebaica were then added, by which she at first found considerable ease ; but, this losing effect also, the tincture was increased to one drachm. Finding now that opium given in this way, afforded more relief than when it was taken by the mouth, and not being certain but the continuance of the terebinthina might cause too much heat, I therefore directed the following :

V. R. Mellis unciam dimidiam,
Spermatis Ceti soluti drachmas duas,
Tincturæ thebaicæ drachmam unam,
Aquæ hordeatæ uncias sex,
Misce, fiat enema pro re nata injiciendum.

This enema, the tinctura thebaica being at last increased to two drachms, was given at times to procure respites of ease ; especially
when

when she was exhausted by the pain, till the latter end of February, 1753, at which time being well convinced she was better in every respect, I advised her to leave it intirely off.

She tried it, but having still a sensation of the burning pain, though not near to that degree as it had been ; having enjoyed some refreshing slumbers by means of the opiate, she importuned me hard for the liberty to have some of it by her. I therefore allowed her to take it in drops when she found the necessity urgent. With this she went on till May, when, at last, taking it so freely as to an hundred and fifty, and sometimes two hundred drops in a day and night, whereby she became continually intoxicated, I prohibited its use totally, from an apprehension, that it must hinder, or disturb the efforts which nature seemed to be making towards a gradual recovery ; for she was now manifestly better in health. She could walk and stand more upright, though not quite erect. The catamenia had continued regular, as to time, but were still very small in quantity ; and but of short duration, which, as I imagined, was, in some measure, owing to the use of the opium.

The uterus itself felt lessened, and not so hard, and there was no discharge.

The medicines, besides those mentioned, which were taken during this time, were those of the nitrous and softest kinds ; the body was kept open by gentle aperients, as the above electuary, manna, tamarinds, purging salts, &c. oleum amygdalarum dulcium being sometimes added ; and when the costiveness rendered these and an enema also ineffectual, aloetic pills were given ; and when these failed likewise, which sometimes happened, an equal quantity of argent. viv. being added (f. a.) they generally succeeded.

One thing I must here observe, viz. that I cannot find by my notes that she was ever bled during all this time ; if she was not, experience makes me think now that this was an omission.

Having

Having debarred her now from the use of opium, and she still feeling pain, which, although not violent, was yet hard to bear always, and being advised by some of her acquaintance to go to St. George's Hospital, she accordingly went, was admitted, and stayed there about three months.

In a day or two, after she was taken in, she was examined by one of the surgeons of the hospital, who had knowledge in midwifery, and who gave it as his opinion, that he found neither disease, nor any thing unusual in respect to the uterus.

She was now bled once or twice a week, in small quantities for some time, and then not so often. The medicines which she took, were nitre, purging salts, manna, oleum amygdalarum dulcium, opium, and sometimes pills with the foetid gums.

Notwithstanding the advantage of this very rational plan, conducted by the judgment of experienced and very skillful physicians, she returned home with nearly the same degree of pain; I thought that it appeared rather lessened, but she would not acknowledge it. She continued an out patient for some time; but, finding the pain still continue, on the 26th of February, 1754, I was desired to attend her again.

I now found the uterus mostly, if not intirely, in the same state, as when she went to the Hospital; though the catamenia had still returned at the regular periods. About six ounces of blood, which was very fizy, were now taken from the arm; and she was desired to take an aperient electuary, like that which was first prescribed. On the 24th of March, I ordered her the following pills:

VI. R. *Æthiopis Antimonialis* (a *Pharmacopœia Doctoris James*) drachmas duas et dimidiam,
Pulveris Rhei drachmam dimidiam,
Muscelaginis e gummi Arabico
 quantum sufficit;
 Misce, fiant pilulæ numero triginti, quarum capiat duo
 omni nocte.

These pills were continued to the beginning of July, during which time the body was kept open; and about once a week she took a purging draught, or a dose of cathartic pills. She was also bled twice more, and the uterus was injected again during the space of about fourteen days.

After this she felt a violent itching within the pelvis, vagina, and labia pudendi. This pruritus being extremely troublesome, I desired her to wash the labia, and syringe the vagina once or twice a day, with the following lotion :

VII. R. *Mercurii corrosivi Sublimati*
 drachmam dimidiam,
Aquæ Calcis libram unam,
Mellis Rosarum unciam unam; misce.

As this gave her some relief she continued the use of it till August. In September a large issue was made by a caustic above the knee, which discharged plentifully. I also ordered the following electuary and water :

VIII. R. *Spongii ustii* unciam unam,
Salis Nitri drachmas duas
Conservæ Rosarum rubrarum
 unciam semis,
Syrupi Simplicis quantum sufficit;
 Misceantur, et fiat electuarium de quo
 capiat quantitatem nucis moschatæ
 bis in die, superbibendo libram di-
 midiam aquæ marinæ.

K k k

This

This electuary and water were continued to the middle of November. She was now manifestly better, both in respect to health, and to the abatement of the pain.

In the latter end of January, 1755, and beginning of February, she was troubled with a difficulty in making urine, for which she was blooded, and took some oily aperients. The cause of this complaint became soon manifest, by a very natural enlargement of the uterus; for the husband (with whom I had often joked) had played his part so well, that on the sixth day of June following, I delivered her of a son, who is now alive, and since that time I have delivered her of five more children.

With respect to the uterus, I found nothing unusual; the placenta also was natural, and came away easily. The lochia were rather small in quantity, yet she recovered very well, excepting that she felt a little sensation of a heat in the region of the pelvis, that continued till the birth of the next child; since which time she has felt nothing of it, and continues still in perfect health.

Case II. On the 30th of December, 1760, I was called to Mrs. Walker, at the Queen's-Head, Brook-Green, Hammer-smith, who was then aged 27. She had been married six years, and had once conceived, but soon miscarried. Before marriage she had been very healthy and regular, but since that time, her catamenia returned sometimes every fortnight very copiously attended with great pain, which lately had increased much.

About a month before I saw her, she was seiz'd with a violent burning pain in the pelvis, ascending at times as high as the small of the back; but more commonly running across the hypogastric region, and then occasioning a violent forcing and bearing down of the womb.

She was also affected with a frequent urgency to urine, attended with pain; this last complaint began about a week before the former.

The

The uterus was enlarged, and there issued from it a large discharge of a brown coloured foetid humour, which, at this time, it being the catamenial period, was tinged red; but there were not any ulcers, either about the labia, or within the vagina.

She had no appetite, but was feverish, thirsty, and had neither ease, nor sleep, day or night; except when obtained by opium. The case being examined, I prescribed the following draught:

IX. R̄ Mixturæ oleosæ cum gummi uncias duas;
Fiat haustus sexta quaque hora sumendus.

This draught was continued to the third of January, 1761, during which time the rectum was now and then exonerated, and fomented with an emollient glyster.

On the fourth some blood, which was fizy, was taken from the arm; the draught was continued, half a scruple of nitre being added, and the following injection used.

X. R̄ Pulveris gummi arabici semiunciam,
Solve in aquæ rosarum drachmas sex,
cui sensim adde
Olei amygdalarum dulcium uncias duas;
Aquæ rosarum uncias sex; misce,

The uterus was injected by three ounces of this mixture, an ounce of adeps anserinus being added, first made agreeably warm: And in the evening she took an anodyne. On the sixth the following draught was taken:

XI. R̄ Infusionis fennæ fescunciam,
Mannæ optimæ drachmas tres,
Tartari solubilis fescquidrachmam;
colaturæ adde
Tincturæ fennæ semi unciam;
Misce. fiat haustus.

The

The uterus was injected once a day, and the oily draught continued to the thirteenth, when the nitre was increased to a scruple. She was now bled to six ounces, and advised to repeat the purge on the morning following. At this time the fever was intirely gone; the uterine discharge was large; but not so foetid, and there were considerable respites of ease.

On the fourteenth, three drachms of the balsam capiviæ were added to eight ounces of the oily mixture; and the adeps laid aside. The use of this injection and that of the oily draught was continued to the nineteenth, at which time she was bled again to about seven ounces, which were still fizy.—The draught and injection were continued to the twenty-first, when the uterine discharge was considerably lessened, had lost its foetidness; and, in every respect, the patient was manifestly better.

On the twenty-third she was seiz'd with a violent cough, attended with a fever. These incidents were attributed (by an experienced and very skilful apothecary, as well as by myself) to a cold which she had caught by having the room washed.

Venesection was repeated to six ounces (blood still fizy) and the following draught directed.

XII. R Spermat. Ceti soluti drachmam dimidiam,
 Succ. limonum drachmas tres,
 Salis absinthii scrupulum unum,
 Aquæ alexiteriæ simplicis unciam unam,
 ——— spirituosæ,
 Syrupi pectoralis singulorum drachmas duas;
 Misce, fiat haustus sexta quaque hora sumendus,
 Tincturæ thebaicæ gut. xvi. addendo hora somni.

On the twenty-sixth the cough being still very troublesome we were in some doubt whether it did not partly proceed from the lessening
 of

of the uterine discharge, for this was now very small. An issue was therefore made below the knee. But her habit of body was so very bad, as to threaten a mortification, so that it was obliged to be healed in about a week. The draught was continued, and her body kept open by aperients, till the second, when she was seiz'd with a pleuritic pain, a quick pulse, and considerable increase of the cough.

Venesection was again repeated and the following remedies prescribed :

Applicetur vesicatorium affecto lateri quamprimum.

XIII. *R* Spermatⁱ Ceti soluti drachmas duas,

Salis nitri scrupulos quatuor,

Aquæ puræ uncias sex et dimidiam,

— nucis moschatæ,

Syrupi pectoralis,

Singulorum drachmas sex ;

Misce, fiat mixtura cujus capiat cochlearia quatuor
sexta quaque hora.

XIV. *R* Emulsionis communis libras duas ;

cujus bibat calide sibi. horis intermediis.

As the pleuritic pain lessened, an eruption of small and reddish pimples like miliary pustules, came out over all the body.

The mixture and emulsion were continued to the tenth of February, the cough abated ; the eruption vanished ; and the fever went off entirely. The uterine discharge as well as the pain being now gone, I left off the injection, and advised the use of the following remedies :

XV. *R*

OF A CANCER IN THE UTERUS.

XV. R. Radicis farfaparillæ incisæ uncias tres,
 coque in aquæ puræ libris quatuor ad
 dimidium ; colaturæ adde
 Sequentis solutionis fescunciam,
 Syrupi ex althæa unciam unam ;
 Misce. Capiat calide lbfs. omni nocte manequæ.

The solution was made thus :

XVI. R. Mercurii corrosivi sublimati grana octo,
 Spiritus vini rectificati libram dimidiam,
 Misce.

These alteratives were continued to the eighteenth, when a sweat supervening, which seemed to be colliquative, the following mixture was directed :

XVII. R. Corticis peruviani contusi drachmas sex,
 Balsami tolutani drachmam unam,
 coque in aquæ fontanæ unciis duodecim,
 ad uncias septem ; colaturæ adde
 Tincturæ corticis peruviani simplicis,
 Syrupi albi singulorum unciam dimidiam,
 Misce. Capiat uncias duas ter in die.

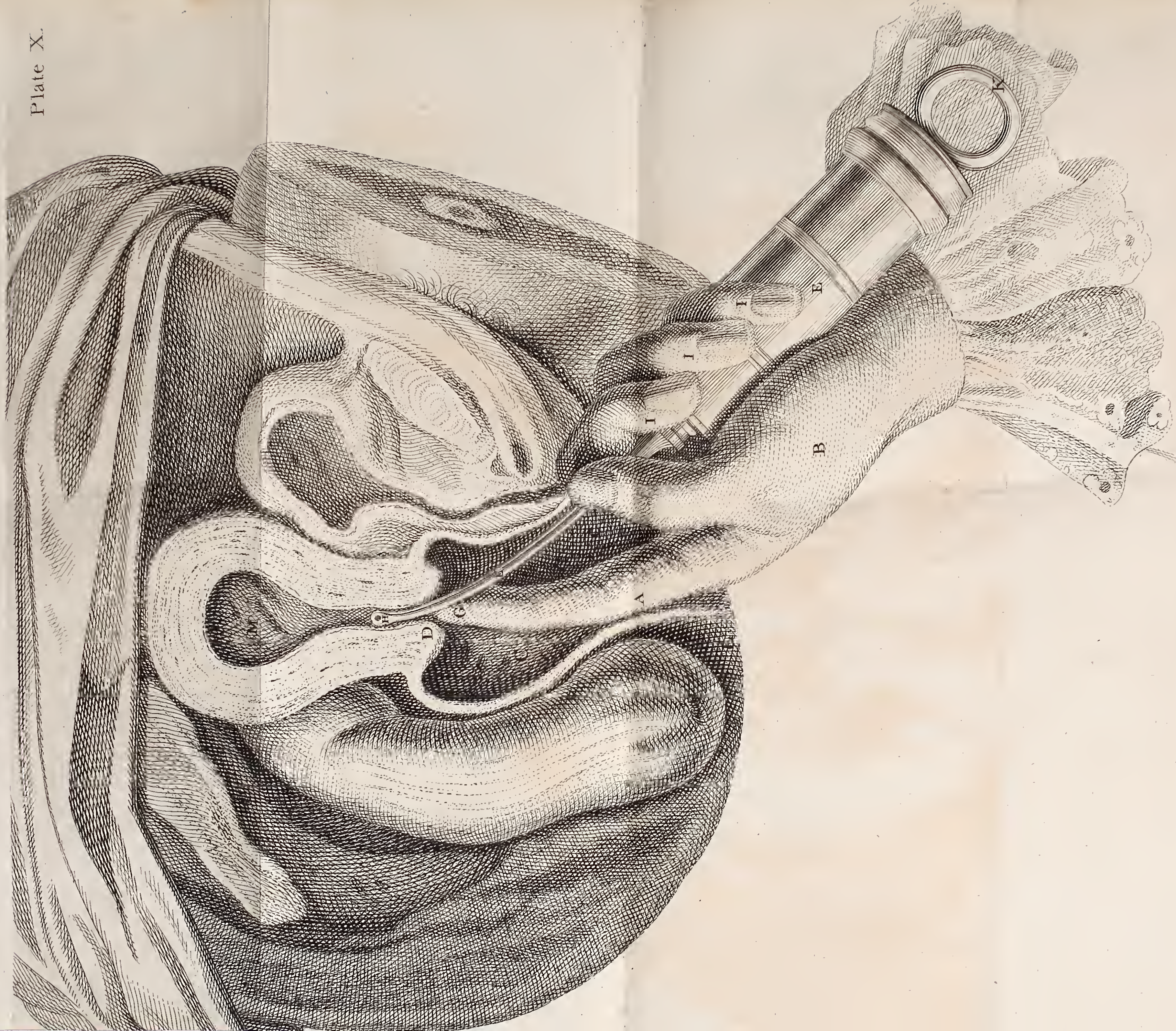
This mixture, a few drops of the elixir vitrioli mynsichti being added to each dose, was continued to the ninth of March, at which time she was free from the fever and uterine disorder ; but was very weak, and her legs swelled.

I now advised a nutritive diet, consisting principally of the animal kind ; and that she should ride as often as she could.

These particulars being observed near two months, her health was perfectly restored ; and since that time she has had no return of the complaints, but continues in very good health.

C H A P.

Plate X.



C H A P. XII.

OF INJECTING THE UTERUS.

TO perform this operation, let the patient lie on her left side, across the bed, with her knees forwards towards the abdomen, as in the position for delivery.

A sufficiency of cloaths should be properly placed to keep her dry, and she must be decently covered.

The injection should be warmed to a degree of heat nearly equal to that of the body, and the woman, who is to assist, must be instructed how to fill the syringe, and give it as required.

When thus prepared, the operator must kneel or sit at the side of the bed, and pass the fore finger A, of his left hand B, first well Plate X. anointed with oil or some agreeable unguent, along the vagina C, C, C, till its point arrives at the posterior side of the os uteri D; then the syringe E, being filled with the injection, must be taken from the nurse by his right hand, and the canula F passed along his finger A to its point G, from whence it must be slid into the os uteri, and so on till about an inch of it is within the orifice, taking care at the same time not to press its point H against the inner surface of the uterus, so as to occasion pain or hurt. The barrel E of the syringe must now be grasp'd with the three fingers I, I, I, of his left hand, the piston K laid hold of by his right hand, and then the injection thrown with a moderate degree of force, into the cavity of the uterus.

This being done, whilst the finger remains in the vagina as a director, the syringe must be withdrawn, loaded, introduced, and discharged again in the same manner for three or four times, or as often as necessary.

If the os uteri is very high in the pelvis, or if the operator's finger is but short, the operation will be easiest performed by passing the fore finger of the right hand for the director; and, having conducted the canula with his left hand, from the point of the right fore finger into the uterus, he may either discharge the injection in that position, or turn the point H towards the pubis, as represented in the figure. But, if he does not turn it thus, he must observe to keep the hand, and the barrel of the syringe back towards the perinæum L; and when the point of the canula is sufficiently within the uterus, he may bring the os tincæ a little forwards towards the pubis; by which position the injection will be thrown directly along the cavity M.

The operation being finished, a warm cloth must be immediately applied, the patient remaining afterwards about half an hour in a horizontal position.

The uterus may be injected in the manner I have described, in less time than five minutes, with great decency, much ease, and no danger; the truth of which I can aver from long experience.

T H E

T H E
A P P E N D I X.

L E T T E R I.

From DR. JOHN REDMAN, PHYSICIAN,
in Philadelphia.

S I R,

YOU will no doubt be surpris'd to find yourself address'd by a person so wholly unknown to you. But your merit, in consequence of the pains you have taken for the good of mankind, by your truly valuable Treatise of Midwifery, so well calculated to improve the obstetric art, entitles you to the regard and acknowledgements of all who profess and practice it. I did not hear of your book till last year, when I met with Mr. White's Essay on the Puerperal Fever, which, being a subject I had long wish'd to see treated by those who had opportunities of attending many cases of that sort, and examining some of them after death, I read it with great attention and pleasure, and observed therein, among others, your Treatise of Midwifery mentioned with approbation: And as I was ever anxious to see any thing new on that subject, I immediately sent for it to my correspondent, Mr. Bevan, Druggist, in London, not doubting to enjoy great satisfaction therefrom. Upon receiving it lately from him, I was not disappointed, but can say I have received great entertainment, and no small im-

provement thereby; and therefore take this opportunity to thank you for myself, and acknowledge how much I think the world indebted to you, for so important an addition to medical science in general, and the obstetric art in particular.

I find by your account, I had attended Dr. Smellie about a year before you, and should have been happy if we had met there, and been acquainted at that time. I then thought his improvements such as would not be soon enlarged by any other; and indeed I think the world much indebted to him, both for his genius and humanity in that way, and especially for his great industry and very honest endeavours, by every possible method he could, to enlarge and perfect the art. But upon entering into practice, I soon found there were some defects in his method, and especially (as you mention) great difficulty in applying his forceps, so as to answer the purpose, without waiting long, till the head was advanced very low, before I could fix them, so as to accomplish the delivery; and more than once I was obliged to do it with only one blade on one side of the head, depending on the assistance of my left hand on the other side, and that of the pains to complete the delivery. But the length of time, and great pressure of the head in the passage, and by the forceps, when I used both blades, was often attended with ill consequences to the mother or child; so that I was once induced, tho' with great labour, to turn the child, rather than wait too long, and run the risque of the use of the forceps; and that in a case where I would have used them, had I not been so much diffculted before to fix them properly. For these reasons, I have long been of opinion, that a further improvement was wanting, but was not lucky enough to hit upon it myself; I was therefore highly pleased when I received your book, and found you had made an improvement in so important an article as the forceps; and cannot be easy, till I become possessed of a set of them.

them. I should have ordered my correspondent immediately to have sent me them, but I observe in your introduction, and Chap. VII. you complain, that some have been made and vended, which were not quite agreeable to your pattern, and advise students not to use any, but such as are made exactly according thereto. I was therefore at some loss how I should certainly obtain such; for, should I send to my correspondent, as he is not particularly versed in those matters, he must depend on the maker of whom he purchases them, who being ignorant what the particular deficiency is you complain of, might send me the best he could make, and yet be faulty: And as I am at so great a distance, I might be deceived, and not able to remedy myself, for a long time at least. I can therefore see no way so likely to prevent a mistake of so great importance, as by applying to yourself, and requesting the favour of you to order a set of forceps, made in the best and most exact manner, according to your direction, by a mechanic who has been used to do it, and whom you can trust. I confess I am almost ashamed to do it, but humbly hope you'll excuse the freedom I use, and trouble it will give you; to which I am not a little induced, by the spirit of humanity and benevolence, conspicuous in many parts of your book, and so fully evidenced, not only by the general design, but by the great labour, pains, and time it must have cost you, as well as patience in composing and prosecuting so arduous and important a task: which, as it will make you useful to generations yet unborn, I doubt not will make your memory dear to posterity, for ages yet to come. For these reasons, I flatter myself, you will rather be pleased than offended at my requesting you to order them, with one of your perferators, embryulcus, and crotchet, carefully packed up in a box, to be sent to Mr. Timothy Bevan's, Druggist, in White-Hart-Court, London, whom I have ordered to pay for them, and send them to me by the first good opportunity.

opportunity. I already have promised to present your treatise to our hospital, which I have had the honour to attend as one of the Physicians, for fifteen years, since its beginning, and greatly recommended it to the pupils of that institution, who are not a few, and anually dispersing all over the continent; whereby your labours will become more extensively useful than heretofore you might imagine, which, I doubt not, will be very agreeable to that humane and generous disposition you display throughout the whole book. It will be also desirable to know, who you think can be best trusted to make the forceps, &c. if any others should desire to send for them. If any thing new has occurred to you, or any other publications that are valuable have appeared, I shall esteem it a great favour to have such intelligence from you, as may enable me to come to the knowledge and sight of them.

And now, worthy Sir, that I may no longer trespass upon your time, which, I doubt not, is much and better employed, permit me, with due respect and just esteem, once more to crave your pardon, and at the same time your compliance with my request; which, as it will make me more useful, and probably more successful, in the important and tender office I am sometimes called to perform, I hope will be a real gratification to your benevolent mind; and will also greatly oblige, your unknown,

But very affectionate humble servant,

J O H N R E D M A N.

Philadelphia, in Pennsylvania,

North America,

September 20, 1774.

L E T T E R II.

*February 20, 1775,**From the* AUTHOR, *to* DR. JOHN REDMAN.

S I R,

YOUR very polite and sensible letter, dated *September 20, 1774*, reached me a few weeks ago, and should have been answered before now, if the instruments could have been compleated. It certainly must appear strange to you, that any difficulty should arise in effecting so very trifling a piece of mechanisim, but true it is, even since my publication, that Gentlemen have applied to me from many very different places on this^d head; and though I have given workmen my own instruments to make the others by, yet never could get them done to my mind; I have now however got a set finished, which I beg your acceptance of, as patterns to have others made by, without having the trouble to send to England for them: I do not mean, by saying this, that you should be scrupulous about applying to me for any assistance you may wish for; no, it will always give me pleasure to execute your commands, in every thing that lies in my power. Nay, you are entitled to my best services, not only for the very great honour which you have done me in your letter, but for your generous and humane endeavours to assist mankind, and to diffuse my work through the very extensive country of America, for which I return you my most grateful thanks. It is true, I believe that most men are fond of applause, nor can I pretend to be void of ambition; and, though conscious of deserving but very little praise, yet finding my endeavours for the good of others to be approved of by gentlemen of learning and ex-

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perience,

perience, especially, Sir, by you, whose letter displays a higher degree of goodness of heart, as well as judgment, in such parts of the obstetric art as I will venture to say, very few Practitioners of that branch of physic have any right to claim, I cannot therefore but be, as indeed I am, very happy.

You desire to know if any thing new has occurred to me, or if any publications that are valuable have appeared.—I have for several years endeavoured, as much as I could, to throw my practice of midwifery into the hands of a nephew, and to apply myself to that of physic, and some branches of chemistry; so that but few opportunities have occurred to me lately, for making discoveries in the obstetric line.

Could I have time to give new editions of my System of Midwifery, and of a little work which I published before it, (called “Friendly Cautions to the Heads of Families,” one of which, I herewith send, and beg your acceptance of) I would correct some errors of the press, and make a few alterations; though I must own to you, that so far as I have been able to judge, either from my own practice, or that of others, the general scope and principal parts of them both do still bear the test of trial.

I cannot help thinking that it must be needless, if not impertinent in me to tell one of your experience, that since my publication I have found the use ofunction a slow but safe and certain way of curing the lues venerea. However, as I perceive your candour, I am encouraged to tell you the method I use; it is this, I advise $\mathfrak{D}i.$ of unguent (made as follows, $\mathfrak{R}.$ Axungia \mathfrak{x} porcin \mathfrak{x} , argenti vivi an. $\mathfrak{z}iv.$ argentum vivum teratur cum $\mathfrak{z}ii.$ axungia \mathfrak{x} donec apparere desinat, deinde paulatim adde residuum, et diligenter misce) to be well rubbed into the skin, on the inside of the patient’s thighs or legs, every night for a week; then increasing to $\mathfrak{z}\mathfrak{ss}$ during another week, and so on to $\mathfrak{D}ii.$ or more, till the cure is compleated, observing all the time to leave off a day, or longer, whenever the mouth grows
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hot, or the gums so much affected as to indicate a spitting, which I think should always be avoided*.—I find also, that though emetics and cathartics should be always used with caution in time of pregnancy, yet when necessary, may be safely given in larger doses than those which I ventured to advise, when I published.—And in cases that have required the use of forceps, having introduced the blades, as directed, I have found the clams twist so much (arising as I apprehend from some awkward position of the child's head, neither so easy to myself, nor to the patient in the application as I wished) that I have been troubled to bring them so square as to lock; yet by shifting them gently a little round from side to side, I have always overcome the difficulty, and finished the delivery as directed: except when the child has been long dead, and its head pushed out so greatly in length as not to be encompassed by the clams, in which cases, as soon as discovered, rather than fatigue or hazard the patient by uncertain endeavours, I have delivered her by the embryulus, which instrument, used as I have directed, I must still declare to be more safe and efficacious than any I know of.—Besides the above few hints, I herewith send you a case from my nephew, Mr. Corson, which I think is worthy of some notice, as it indicates an advantage that he gained by desisting, and waiting awhile, when he found the os uteri, too rigid to be sufficiently dilated with safety by the hand; and also helps to prove, that when a flooding has been occasioned by the placenta's having adhered to the cervix and os uteri, as was the case here to my own knowledge, should the natural efforts be so effectual as to bring the head of the child into the pelvis, the bleeding orifices will become so much compressed, that the hemorrhage will cease†.

* This practice coincides so much with that of Mr. Hunter's, in his Treatise on the Venereal Disease, lately published, that I must have had my hint from him, prior to the time this letter was wrote.

† I do not find that I have kept a copy of the particulars of this Case.

I have a notion that you must have seen every valuable work which has been published here these several years past, excepting that of Dr. Hunter's, which excellent work, I think, must give you great satisfaction. You mention Mr. White, and I suppose you have seen Dr. Hulme's work, published before on the same subject. I have not the honour of being personally known to either of the two last mentioned gentlemen, but, must do them the justice to say, that I think the world is much obliged to them, (especially to the latter) for throwing new light upon the nature and cure of the puerperal fever. I do assure you, that when I was about publishing my book, I applied to several of the most eminent Physicians in London, requesting their opinions concerning this fever, but every one declined it; so that I was under the necessity of giving the public only such ideas as I could form from my own experience, and the testimony of some judicious surgeons, especially Mess. Hunter and Hewson, who had opened the bodies of several women, who had died of this fever. I am happy in finding several parts in the books of both Dr. Hulme and Mr. White, correspond with the hints which I had given, and serving to explain this matter better than I was able, or even durst venture to assert at that time from my own experience.—I must now, Sir, conclude, by telling you, that I shall esteem it an honour done me, should you continue a correspondence with me; and by assuring you that I remain, with just regard and affection,

Your most obliged, and most obedient humble Servant,

ROBERT WALLACE JOHNSON.

L E T T E R III.

From D R. J O H N R E D M A N.*Philadelphia, January 30, 1776.*

S I R,

I AM now to acknowledge the receipt of your agreeable favour, and also your valuable present of instruments, in September last, having lain in Mr. Bevan's hands for some months; which delay was owing to several Captains refusing to take them, lest it should be a breach of the non-importation agreement, not knowing the value or importance of them. And they might have continued there still, if I had not engaged my friend, Captain Falconer, to bring them in his chest, by representing to him the value of such an acquisition here, where we have so few that could make them exactly according to your improvements, from a figure on paper. The difficulty of obtaining such small matters, and making suitable returns, among other more weighty reasons, makes me heartily regret the unhappy contest between England and America; especially, as, at this time, it prevents my being able to make you any return than in words, but hope ere long, the communication will be so restored, as to allow me to do it more substantially; and 'till then I can only add my sincere acknowledgements to the conscious happiness which your benevolent mind will receive, from having put it in my power to do more good to the distressed.

Your kind and generous present of the several obstetric instruments, improved and finished under your direction, yielded me the double pleasure of enabling me and others to be more safely useful,

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and also as a testimony of your regard, which enhances the value. The forceps are very neat, as well as ingenious, but I think it would extend their utility, if an inch was added to their length; as thereby they would reach higher up, which may be necessary in some cases, without diminishing their use, in those that are low and more advanced; and besides, their joints would then be more likely to lock on the outside of the vagina, especially if the addition was wholly in the blades: But I suppose, your reasons for not having them longer, were the same as Dr. Smellie's, who says, in his chapter on fillets and forceps, that he had contrived a similar pair (being curved on the sides) but longer, to take better hold of the head when resting on the pubes, than he could do with the straight ones, especially if the sacrum projected, as in that case he could not pass the straight ones far enough back at the perineum, to pass their points before and above that projection; but, at the same time strongly advises not to use them, except the head be small, lest by too great force the mother be so injured, as to endanger her life. But then, I wonder he did not see their use and preference, when the head was lower down, so as to adopt them in his smallest size, which is exactly of the same length with yours; a pair of which I brought with me by his directions, but never used but once, having always found his longest, (which are twelve inches) not at all too long, in most cases where absolutely necessary to use the forceps; from whence it is, that I draw my conclusion aforementioned.

I am much pleased with your embryulcus, as a contrivance more easy and safe to be applied for the purpose than the crotchet, especially for young beginners, in whose hands the latter is always dangerous. It will answer in most cases, but I have had some where I think it would not; having acquired all the force of the crotchet, owing to the narrowness of the pelvis, &c. but that does
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not diminish its utility, where it will answer; and it is certainly safer to try it first.

You observe, that it is probable, I have seen and read most of the authors on this subject and others connected with it, which I believe I have, as Denman, Leake, Hulme, and White, and particularly the last with great pleasure, as being on a subject equally necessary as important, to be so particularly discussed, and which he has executed better than was ever done before. But I can without flattery declare, that I think, as to the practical part, your chapter on that subject is equal to any, and superior to most of them. I had never seen Pugh's treatise, till I met with it mentioned in your's, and then found it in one of our book shops, where it had lain for several years, without being enquired for. I think him candid, but too general to be so useful to young students as Smellie, especially on turning: but I believe his principal design was to prevent opening the head (too customary before) and to recommend his long curved forceps (being fourteen inches) somewhat similar to your's, but not near so compleat, especially in not having the inverted curve on the under side, by which the perineum is saved from danger, &c. It may be a good vade mecum, with some observations of one's own in the margin; and the hint of an assistant pressing above the pubes, on the head of the child, when it sticks after the body is delivered, is a good one: but I fear what he says on the use of the long forceps, when the head is above the brim of the pelvis (unless very small) may lead young practitioners to be too bold, and injure the mother, more than will compensate for merely delivering the child head foremost; and therefore not justifiable, unless where turning cannot be done, or will not answer, from the bad formation of the head or pelvis; and then indeed it may be right to try it, before opening the head, if the child be alive. I wish he had given the caution which

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Smellie does (when he mentions the use of the long curved forceps in like cases) respecting the danger to the mother; for however safe they might be in his old experienced hands, I am persuaded they are not so in young ones, without being more on their guard than they generally are; till an experience, painful to humanity, has taught them to be so. And therefore, our good old instructor, with great reason and solemnity, used to charge us not even to attempt to fix his longest strait forceps, till the head was well advanced into the pelvis; by which I doubt not many lives have been saved, which otherwise might have been lost. I have also, with you, found the head sometimes so awkwardly situated, that I could not with ease or safety fix the forceps, and suppose it was owing to its coming diagonally, as Smellie terms it, or the projection of the sacrum prevented their points from coming exactly right; or perhaps both. The former I am sure was once the case with me in the beginning of practice, when I was obliged to deliver in haste, and found the point of the forceps had sunk into the forehead near the temple.—I think I could have managed it better since. This, as well as some other instances, has ever made me think, that Smellie's forceps would have been better, if their points had been a little wider, and thinner or flatter, as your's are, whereby they would be less liable to slip off and foil the operator, as you mention they did with you.

I really congratulate you on your retirement from the hurry of business, which I do not wonder at, as it must have been very fatiguing.—May you enjoy much health and long life, and be blest with a comfortable old age, and finish your course with that joy and peace, which is the reward of virtue and true usefulness; and at the final close thereof, be admitted to that state of bliss, where the good man rests from his labours, and his works do follow him. And may the Beneficent Creator of the Universe, who wisely dis-

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poses of all events for the general good, grant, that a speedy, honourable, and lasting reconciliation may take place between Great Britain and America; that so we and our posterity may henceforth walk as brethren, and pursue the affairs of this short and transitory life as heretofore, in an amicable union of hearts and interests; and no more have occasion to fall out by the way, even to the end of time! Thus wishes, yea, thus earnestly prays,

Dear Sir,

Your very respectful and affectionate humble Servant,

J O H N R E D M A N.

F I N I S.

DIRECTIONS to the BINDER.

Plates I. II. and III. to face Page 1. Plate IV. to face Page 55. Plate V. to face Page 77. Plate VI. to face Page 269. Plate VII. to face Page 291. Plate VIII. to face Page 293. Plate IX. to face Page 417. And Plate X. to face Page 439.



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